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CHAPTER 1

INTRODUCTION

REFERENCES.

(a) OPNAVNOTE 4700 - Notional Intervals, Durations, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships
(b) OPNAVINST 4780.6 - Procedures for Administering Service Craft and Boats in the U.S. Navy
(c) OPNAVINST 4700.7 - Maintenance Policy for Naval Ships
(d) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy
(e) NAVSEAINST C9094.2 - Submarine Valve Operation Requirements for Builders and Post-Overhaul Sea Trial Test Dives
(f) CINCLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
(g) CINCPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
(h) OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual

LISTING OF APPENDICES.

A List of Acronyms
B Glossary of Terms

1.1 PURPOSE. The purpose of this volume is:

a. To provide guidance for implementing and executing the management of an integrated fleet maintenance process for all Navy ships throughout their life cycle. This includes establishing policies and responsibilities for determining, authorizing, planning, scheduling, performing and evaluating maintenance of ships, to ensure quality, safety and maximum operational and material readiness. References (a) through (h) shall be used in conjunction with this volume in establishing an effective maintenance program.

b. To outline current maintenance process policies and responsibilities for all maintenance availabilities and delineate programs and associated data management systems required for accomplishing this maintenance.

1.2 SCOPE.

a. This volume applies to all ships of the Navy (active and reserve); it does not apply to civilian operated ships assigned to the Military Sealift Command. Throughout this manual, the term "ship" refers to all surface ships, aircraft carriers, submarines and those patrol and service craft specified in reference (a). Reference (b) provides policy and guidance for maintenance of service craft and boats not addressed in reference (c).

b. The Foreword in Volume I of this manual contains a master list of references. These references are arranged in alphanumeric order to facilitate the ordering of documents. References used in specific chapters are listed at the beginning of that chapter. Appendices A and B of this chapter contain a list of acronyms and glossary of terms used in this specific volume.

c. Equipment under the cognizance of the Strategic Systems Project Office and Naval Sea Systems Command (NAVSEA) Nuclear Propulsion Directorate (08) is maintained in accordance with Strategic Systems Project Office and NAVSEA 08 directives, respectively.

1.3 CHANGES AND CORRECTIONS. Changes and corrections will be issued as required. Comments and suggestions for improving or changing this volume are invited. Address comments, recommendations, and requested changes to Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity utilizing the change request form located in the front of this manual. If changes are submitted in electronic format, facsimile or E-mail, each change request shall contain the information required on the change request form.

1.4 REQUEST FOR COPIES OF THE MANUAL. Activities on distribution for the Joint Fleet Maintenance Manual (JFMM) that require additional copies or activities wanting to be added to distribution should submit a letter to their applicable Type Commander (TYCOM), identifying CD-ROM/paper requirements along with justification for the request. To the maximum extent possible, technical publications libraries at each activity will receive all copies of the manual for that activity and coordinate local distribution and updates.

APPENDIX A

LIST OF ACRONYMS

3-M	Maintenance and Material Management
A&I	Alteration and Improvement
AERP	Advanced Equipment Repair Program
ARRS	Analysis, Record and Report Section
ASF	Assist Ship's Force
AWP	Availability Work Package
AWR	Automated Work Request
BQC	Emergency Underwater Telephone
CASREP	Casualty Report
CBM	Condition Based Maintenance
CMP	Class Maintenance Plan
CNO	Chief of Naval Operations
CO	Commanding Officer
COMSUBDEVRON	Commander Submarine Development Squadron
COMSUBLANT	Commander Submarine Force, United States Atlantic Fleet
COMSUBPAC	Commander Submarine Force, United States Pacific Fleet
COSAL	Coordinated Shipboard Allowance List
CPJ	Critical Path Job
CS/CCS	Command and Control Systems
CSMP	Current Ship's Maintenance Project
CV	Aircraft Carrier
CVN	**Nuclear Powered Aircraft Carrier**
CWP	Controlled Work Package
DSRS	Deep Submergence Rescue System
DSRV	Deep Submergence Rescue Vehicle
DSU	Deep Submergence Unit
DSV	Deep Submergence Vehicle
ECM	Electronic Counter Measure
EDL/ESL	**Equipment Deficiency/Status Log**
EMBT	Emergency Main Ballast Tank
EOC	Engineered Operating Cycle
EOG	Electrolytic Oxygen Generator
ESGN	Electrically Suspended Gyro Navigation
ESM	Electronic Warfare Support Measures
FLTCINC	Fleet Commander In Chief
FMA	Fleet Maintenance Activity
FMAV	Fleet Maintenance Activity Availability
FMP	Fleet Modernization Program
FMPMIS	Fleet Modernization Program Management Information System
FWP	Formal Work Procedure
FTSC	Fleet Technical Support Center
HM&E	Hull, Mechanical and Electrical

IEM	Inactive Equipment Maintenance
IFF	Identification Friend or Foe
ILO	Integrated Logistics Overhaul
IMMP	Integrated Maintenance and Modernization Planning
INSURV	Board of Inspection and Survey
ISE	Individual Ships Exercises
ISIC	Immediate Superior In Command (Group or Squadron)
JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
LLTM	Long Lead Time Material
LOA	Light-Off Assessment
MACHALT	Machinery Alteration
MBT	Main Ballast Tank
MCA (Submarines)	Material Condition Assessment
MCA (Surface Ships)	Machinery Condition Analysis
MCAI	**Material Condition Assessment Inspection**
MCAP	**Material Condition Assessment Process**
MDCO	Maintenance Document Control Office
MDS	Maintenance Data System
MIP	Maintenance Index Page
MJC	Master Job Catalog
MM	Maintenance Manager
MOA	Memorandum/Memoranda of Agreement
MRC	Maintenance Requirement Card
MRMS	Maintenance Resource Management System
MTT	**Mobile Training Team**
NAVAIR	Naval Air Systems Command
NAVIMFAC	Naval Intermediate Maintenance Facility
NAVSEA	Naval Sea Systems Command
NEC	Navy Enlisted Classification
NPMTT	**Nuclear Power Mobile Training Team**
NRRO	Naval Reactor Representative Office
NSWC	Naval Surface Warfare Center
NSWCCD	Naval Surface Warfare Center, Carderock Division
OIC	Officer In Charge
OPORD	Operational Order
OPTAR	Operating Target
ORDALT	Ordinance Alteration

PAC	Pre-Arrival Conference
PLAD	Plain Language Address Directory
PMA	Phased Maintenance Availability
PMR	Periodic Maintenance Requirement
PMS	Planned Maintenance System
PMT	Performance Monitoring Team
POET	**Point of Entry Testing**
PORSE	Post Overhaul Reactor Safeguards Examination
QA	Quality Assurance
RAD	Restricted Availability Docking
RAV	Restricted Availability
RMO	**Reactor Maintenance Officer**
RMT	Regional Maintenance Team
ROV	Repair of Other Vessels
RPCCR	Reactor Plant Configuration Change Report
RPM	Revolutions Per Minute
RRC	Regional Repair Center
RSE	Reactor Safeguards Examination
RSG	Regional Support Group
SCA	System Certification Authority
SDI	Ship's Drawing Index
SHIPALT	Ship Alteration
SINS	Ships Inertial Navigation System
SITREP	Situation Report
SJM	Selected Job Management
SOE	Submerged Operating Envelope
SOSMIL	Safety of Ship Maintenance Item List
SPM	Secondary Propulsion Motor
SRA	Selected Restricted Availability
SSCA	SUBSAFE Certification Audit
SSR	Ship Selected Records
SUBLANT	Submarine Atlantic
SUBMEPP	Submarine Maintenance Engineering, Planning and Procurement Activity
SUBPAC	Submarine Pacific
SUBSAFE	Submarine Safety
SUPSHIP	Supervisor of Shipbuilding
SUPSHIP NN	Supervisor of Shipbuilding Newport News
SWLIN	Ships Work List Item Number
SYSCOM	Systems Command
T/A	Type Availability
TAMS	TYCOM Alteration Management System
TAV	Technical Availability
TEMPEST	National Policy on the Control of Compromising Emanations
TRIPER	TRIDENT Planned Equipment Replacement
TYCOM	Type Commander

UQC	Underwater Telephone
URO	Unrestricted Operation
WDC	Work Definition Conference
WQC	Underwater Telephone
WSS	Work Sequence Schedule

APPENDIX B

GLOSSARY OF TERMS

TERM	DEFINITION
Deep Dive	The first dive to maximum operating depth. This depth will not necessarily coincide with the design test depth of the hull. See definition of Maximum Operating Depth.
Dock Trials	Dock Trials are those ship trials conducted at the industrial activity to determine the ability of the ship, from a material standpoint, to conduct Sea Trials safely.
Fast Cruise	A period immediately prior to underway trials during which Ship's Force operates the ship for dockside training. Fast Cruise shall, as far as is practical, simulate at-sea operating conditions.
Fleet Maintenance Activity (FMA)	FMAs include tenders, shore based maintenance activities (Shore Intermediate Maintenance Activities, Naval Ship Repair Facilities, Naval Submarine Support Facilities, Naval Intermediate Maintenance Facilities (NAVIMFAC), TRIDENT Refit Facilities, Weapons Repair Facilities and other activities of that type) and supporting activities (port services, etc. that perform maintenance on Fleet assets). Regional Repair Centers and Regional Maintenance Teams are treated as FMAs and funded by their respective Fleets. Fleet Technical Support Centers, however, are not considered FMAs.
Industrial Activity	The activity responsible for accomplishing construction or repair of ships whether private or public. This includes Naval shipyards, private shipyards, shipbuilders, vendors, Naval Aviation Depots, Naval Ship Repair Facilities and other Naval Repair/Technical Activities (Naval Underwater Weapons Center, Naval Ships Weapons Center, etc.).
Initial Dive	For purposes of seawater valve and system testing, as defined in reference (e), the first dive to a depth not previously reached during the trials.
Long Lead Time Material	Material which is not normally available in local stock and may not be received prior to the start of the availability if not ordered prior to the Work Definition Conference (WDC).
Major Chief of Naval Operations (CNO) Maintenance Availability	An availability of six months or greater duration performed by industrial activities under NAVSEA management or contract administration or as designated by the TYCOM or NAVSEA.

Maintenance Manager	Those persons, such as Port Engineers, Ship Superintendents, Ship's Coordinator and Maintenance Planning Managers, assigned to assist Ship's Force in the tracking of work candidates, development of work packages and tracking of FMA/Industrial Activities assigned jobs.
Maximum Operating Depth (Also Maximum Authorized Operating Depth	The depth to the keel for a particular submarine which is authorized by Commander Submarine Force, United States Atlantic Fleet/Commander Submarine Force, United States Pacific Fleet (COMSUBLANT/COMSUBPAC) upon the recommendation of NAVSEA, as the depth not to be exceeded in operations. This depth is normally the Test Depth but may be reduced in specific cases. The depth authorized by COMSUBLANT/COMSUBPAC may be less than, but in no case exceed, the depth recommended by NAVSEA.
Minor CNO Maintenance Availability	An availability of less than six months in duration scheduled by and under Type Commander management.
Moderate Speed	The range of speed that allows the submarine optimum recovery (as shown on applicable submerged operating envelope curves) if loss of stern plane control and/or flooding occurs. Normally 8-15 knots.
Refurbishment Level Maintenance	The actions taken to return a component to "A" condition (like-new condition). Normally done under rotatable pool (Advanced Equipment Repair Program, TRIDENT Planned Equipment Replacement, etc.) programs by Designated Overhaul Points. Designated Overhaul Points must be certified to have the industrial capability to meet the program requirements for performing quality work and have the capacity to meet established Refurbishment Turnaround Times.
Regional Maintenance Team	A site specific, multi-disciplined group of people normally accomplishing "outside shop" or on-platform work. An RMT may be platform or technology specific (e.g., submarines or nuclear) to facilitate necessary worker training and competency. An RMT is generally comprised of both military and civilian workers.
Regional Repair Center	An "inside shop" focusing on a particular product line (e.g., motors) or technology (e.g., machinery). An RRC is generally comprised of both military and civilian workers.
Restoration Level Maintenance	The minimum planned inspection, maintenance and testing criteria to be applied to ensure a component will function satisfactorily until the next planned accomplishment of the maintenance requirement.
Supervising Authority	The officer designated by NAVSEA to represent the Navy Department at an industrial activity; normally a Supervisor of Shipbuilding, Conversion and Repair or the Commander of a Naval Shipyard.

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CHAPTER 2

MAINTENANCE AND MODERNIZATION PROGRAM

REFERENCES.

(a) OPNAVINST 4700.7 - Maintenance Policy for Naval Ships
(b) NAVSEA T0300-AA-MMI-010 - Commercial Industrial Services (CIS) Manual
(c) NAVSEAINST 4710.6 - Submarine Advanced Equipment Repair Program (AERP); Assignment of Responsibilities for and Administration of
(d) SSN21-081-PMS350L-035 - Rotatable Pool Management Plan for the SEAWOLF Class
(e) OPNAVINST 4720.2 - Fleet Modernization Program (FMP); Policy for
(f) NAVSEAINST C9210.4 - Changes, Repairs and Maintenance to Nuclear Powered Ships
(g) NAVSEA SL720-AA-MAN-010 - Fleet Modernization Program (FMP) Management and Operations Manual
(h) NAVSEAINST 4130.9 - Configuration Control Procedures for Preparation of Ordnance Alterations (ORDALTS) to Expendable and Non-Expendable Items
(i) NAVSEAINST 4720.15 - Machinery Alterations on HM&E Equipment and Systems
(j) MIL-STD-2039 - Field Changes and Field Change Kit Preparation
(k) CINCLANTFLTINST 4700.10 - Policies and Procedures for Fleet Technical Support (FTS)
(l) CINCPACFLTINST 4341.1 - Fleet Technical Assistance (FTA) Program
(m) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy
(n) CINCLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
(o) CINCPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
(p) OPNAVNOTE 4700 - Notional Intervals, Durations, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships
(q) OPNAVINST 4780.6 - Procedures for Administering Service Craft and Boats in the U.S. Navy
(r) MIL-P-24534 - Planned Maintenance System: Development of Maintenance Requirement Cards, Maintenance Index Pages, and Associated Documentation
(s) MIL-STD-1388 - Logistic Support Analysis
(t) OPNAVINST 3120.33 - Submarine Extended Operating Cycle (SEOC) Program
(u) NAVSEAINST 4790.19 - Submarine Engineered Operating Cycle (SEOC) Program
(v) NAVSEA TL710-AB-MAN-010 - Depot Modernization Period (DMP) Procedures Manual
(w) OPNAVNOTE 4710 - Fleet Depot Maintenance Schedule
(x) NAVSEAINST 4790.16 - SSBN Extended Operating Cycle (EOC) Program; Policy, Procedures and Responsibilities for
(y) NAVSEAINST 4730.2 - Shipyard Inspection and Required Conditions of Propulsion Plant Systems (Non-Nuclear) for Nuclear-Powered Surface Ships
(z) NAVSEA 0989-LP-062-4000 - Naval Nuclear Quality Control Manual for Shipyards
(aa) NAVSEA 0989-LP-031-4000 - Reactor Instrumentation and Control Equipment Maintenance
(ab) NAVSEA 0989-LP-043-0000 - Commissioned Surface Ship General Reactor Plant Overhaul and Repair Specification
(ac) NAVSEA 0989-LP-026-1000 - A4W/A1G Reactor Plant Manual

LISTING OF APPENDICES

A Material Condition Assessment Process Timeline
B Propulsion Plant Inspections
C Scope of Visual Inspections of Reactor Plant Fluid Systems

2.1 PURPOSE. The purpose of this chapter is to provide Fleet Commanders' guidance for the maintenance of ships throughout their operating cycle in accordance with references (a) through (x). This includes maintenance levels, strategies, programs and modernization which define and support all maintenance accomplished in accordance with technical specifications and standards during a ship's operating cycle.

2.2 MAINTENANCE ACCOMPLISHMENT LEVELS.

2.2.1 Fleet Maintenance. Fleet maintenance encompasses Organizational and Intermediate level maintenance as defined in reference (a). It includes, but is not limited to:

a. Ship's Force maintenance that is planned and corrective maintenance which is within the capability and the responsibility of the ship's crew. The work is a blend of equipment operation, condition monitoring, planned maintenance and repairs ranging from simple equipment lubrication to component changeout, and in some cases complete disassembly and repair in-place. The thrust of Ship's Force maintenance is to take advantage of operator experience and onboard rating skills and to ensure the ship is as maintenance self-sufficient as possible.

b. Fleet Maintenance Activity (FMA) maintenance is that requiring specialized ratings, skill training in special maintenance processes and technical proficiency or equipment/instrumentation not available to Ship's Force. FMA maintenance normally consists of calibration, repair, refurbishment or replacement of damaged or unserviceable parts, components or assemblies, the emergency manufacture of unavailable parts within the FMA capability, and providing technical assistance.

(1) FMAs will accomplish refurbishment level maintenance beyond Ship's Force capability to the maximum extent possible within the policies of this chapter and other directives consistent with the availability of funds, material and skilled manpower.

(2) TRIDENT Refit Facilities are additionally tasked and resourced to accomplish industrial restoration level maintenance to SSBN 726 Class submarine components as part of the integrated overhaul maintenance strategy for these ships.

(3) FMAs include Regional Repair Centers and Regional Maintenance Teams which are capable of conducting in-depth maintenance on their assigned components using the latest available technology.

c. Battle Force Maintenance Activity is composed of the collective Battle Force elements capable of performing maintenance beyond the organizational level. A Battle Force Maintenance Activity maximizes the Battle Force's ability to operate and sustain itself at sea during extended periods in forward areas through improved repair capabilities and material self sufficiency.

d. The Commercial Industrial Services program accomplishes Fleet maintenance for essential Fleet repairs that the FMAs have the capability to accomplish but not the shop capacity. The Commercial Industrial Services concept provides a means of using commercial industrial activities to provide maintenance services on a rapid response basis while observing approved commercial contracting procedures. Reference (b) fully describes policies and procedures for Commercial Industrial Services.

2.2.2 Industrial Maintenance. Industrial maintenance is that restoration level maintenance which encompasses Depot level maintenance as defined in reference (a). It includes but is not limited to:

a. Industrial maintenance that is restoration level work requiring complex industrial processes, journeyman level technician skills, facilities, capabilities or manpower capacity not available at FMAs or to Ship's Force. This capability is provided within the Navy by naval industrial activities, ship repair facilities, Naval Aviation Depots, and commercial industrial activities and repair facilities under contract.

b. Ship maintenance work scheduled for accomplishment by industrial facilities that in the judgment of the Type Commander (TYCOM), Commander Naval Sea Systems Command (NAVSEA), or Commander Space and Naval Warfare Systems Command in their specific areas of responsibility, is not feasible to be accomplished by FMAs or Ship's Force, due to:

(1) Having insufficient time or manpower.

(2) Being beyond the capabilities of the FMAs.

(3) Being of such a nature that split responsibility between Fleet and industrial maintenance activities may occur.

2.3 RELIABILITY CENTERED MAINTENANCE.

a. Reliability Centered Maintenance is a systematic analysis approach where the system design is evaluated for possible failures, the consequences of these failures, and the recommended maintenance procedures that should be implemented. The objective is to design a planned maintenance program to address possible failure consequences. The emphasis here is on the establishment of planned maintenance requirements (versus corrective maintenance requirements).

b. Maintenance plans for in-service ships, systems and equipments should be reviewed and modified to incorporate Reliability Centered Maintenance principles in areas where it can be determined that the expected results will be commensurate with associated costs.

2.4 CONDITION BASED MAINTENANCE. Condition Based Maintenance (CBM) is maintenance based on objective evidence of actual or predictable failure of ship's installed systems or components. This includes condition-directed maintenance and periodicity adjustments to time-directed planned maintenance.

a. A thorough knowledge and assessment of actual equipment condition in relation to its designed condition is the basis for most maintenance decisions. Equipment condition is a broad term which includes static parameters, such as size and shape, and dynamic parameters, such as speed, temperature, pressure, voltage, etc. While each Ship's Force is in the best position to know the condition of its ship and equipment, the complexities of modern design and engineering dictate that specialized assistance be utilized to determine the condition of much of the equipment. Diagnostics, inspections, non-intrusive monitoring for trending/analyses and tests shall be utilized to the maximum extent possible to determine performance and material condition of, and to predict and schedule required corrective maintenance action on, ships systems and equipment.

b. Further information on CBM is provided by reference (a).

c. Programs and organizations that are available to assess equipment conditions are described in paragraphs 2.4.1 through 2.4.8 of this chapter. Deficiencies identified by these and other programs and organizations shall be documented in the Current Ship's Maintenance Project (CSMP).

2.4.1 Unrestricted Operations (Submarines Only). The Unrestricted Operation (URO) program is designed to ensure continued safe submerged operations to design test depth. URO requirements shall be accomplished as scheduled and as described in Volume IV, Part III, Chapter 8, and Volume V, Part I, Chapter 5 of this manual.

2.4.2 Periodic Maintenance Requirements Program (Submarines Only). The Periodic Maintenance Requirement program has been established to integrate test, inspection, and maintenance directives from various Systems Commands and to control their input into each ship's CSMP for the required accomplishment by means of the Master Job Catalog. The phrase, "Periodic Maintenance Requirement" encompasses the URO program, the Integrated Maintenance and Modernization Planning program and the Submarine Engineering Management, Monitoring and Fleet Support Program Office Performance Monitoring Program. All requirements due for accomplishment shall be included in the CSMP at least six months prior to the due date to allow sufficient time for material procurement and maintenance planning. Specific requirements of the Periodic Maintenance Requirement program are described in Volume IV, Part III, Chapter 7, of this manual.

2.4.3 Material Condition Assessment Feedback Program (Submarines Only).

a. The submarine Material Condition Assessment (MCA) program is coordinated by NAVSEA and Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity and is used to improve the maintenance efficiency of critical, non-nuclear Hull, Mechanical and Electrical (HM&E) components by optimizing component refurbishment periodicities. This assessment of a component's condition at refurbishment, along with other pertinent component data such as performance monitoring and corrective maintenance data, provides the foundation for extension or reduction of component refurbishment periodicity. Further, it allows for consideration of modification of component design configuration and/or the revision or elimination of component maintenance requirements with confidence that component reliability will not be diminished.

b. The MCA data collection program consists of Integrated Maintenance and Modernization Planning feedback, MCA data sheets and pre-availability test and inspection information. Other feedback programs and sources of material condition data include, but are not limited to, UROs, Maintenance and Material Management (3-M) System, Casualty Reports, Advanced Equipment Repair Program (AERP), Performance Monitoring Program, etc.

c. The Integrated Maintenance Analysis Profile database displays planned and corrective maintenance feedback, historical configuration, job completion and alteration installation data in support of the MCA program.

2.4.4 Machinery Condition Analysis (Surface Ships Only).

2.4.4.1 General. The TYCOM Machinery Condition Analysis (MCA) and Ship's Force Machinery Vibration Analysis programs provide an objective assessment of the mechanical condition of propulsion plant and auxiliary rotating machinery. MCA surveys and Ship's Force Machinery Vibration Analysis and testing directly support the CBM strategy by determining specific maintenance requirements and priorities.

2.4.4.2 Machinery Condition Analysis Surveys. MCA surveys combine vibration analysis, visual inspections and a review of operating and maintenance records to objectively determine each machine's condition.

a. Surveys are conducted before and after each scheduled Chief of Naval Operations (CNO) maintenance availability period. The survey preceding the availability provides a comprehensive list of machines which require repair. The MCA survey after the availability allows time for corrective maintenance actions prior to the ship's deployment and, if applicable, repairs while machinery is still under the availability warranty period. The post-availability survey also establishes a baseline to which future surveys can be compared.

b. The key to the MCA program is onboard analysis of vibration data. MCA surveys identify machinery problems. A written report details prioritized repair recommendations with appropriate diagnostic and visual inspection data for all machines tested. The report also summarizes machinery repair history.

c. Reports of failure trends and recurring or continuing mechanical problems are available along with MCA history reports. These reports can be generated based on machine type, ship, ship class, and Fleet.

2.4.4.3 Ship's Force Machinery Vibration Analysis Program. The Ship's Force Machinery Vibration Analysis program uses a fully capable automated diagnostics system to provide many ships with the ability to perform vibration testing. A set of computer programs in the diagnostics system provides the equivalent of a full time vibration engineer so that Ship's Force can test and analyze machinery at any time. Periodic training is provided to Ship's Force.

2.4.5 Ship Assessment, Groom and Evaluation. Ship Assessment, Groom and Evaluation is an existing TYCOM program which provides assessment of the material condition of selected shipboard systems and equipment. Ship Assessment, Groom and Evaluation includes identification of discrepancies to support development of a comprehensive conditioned based industrial availability work package. This program is fully described in Volume IV, Part I, Chapter 6 of this manual.

2.4.6 Performance Monitoring Team. The Performance Monitoring Team provides technical support to the Fleet by obtaining data using CBM methodology to monitor mission/safety critical systems and material conditions of selected HM&E systems. Performance Monitoring Team functions include, but are not limited to, the following:

a. Collecting and analyzing equipment data.

b. Establishing and maintaining a master database to track equipment performance.

c. Providing feedback and technical guidance using trend analysis.

d. Making equipment repair and deferral recommendations.

2.4.7 Combat Systems Readiness and Review Program. Combat Systems Readiness and Review program is a TYCOM program which provides maintenance training and a comprehensive review and assessment of a ship's Combat Systems prior to deployment. It includes identification of discrepancies to support development of a comprehensive condition based availability work package for a ship's Combat Systems. For a complete description of the Combat Systems Readiness and Review program refer to applicable TYCOM instructions.

2.4.8 Electronic Systems Review (SSBN 726 Class Submarines Only). Fleet Training Support Center Detachments perform periodic Electronic Systems Reviews on SSBN 726 Class submarines. The major emphasis of the Electronic Systems Review is on the job training of Ship's Force personnel in the performance of the Planned Maintenance System and maintenance of selected electronic equipment. Areas of review include monitoring for safety related issues, monitoring of the Planned Maintenance System and verifying equipment operability for the following systems: Radar, Electronic Warfare Support Measures, Periscopes, Fire Control, Central Atmosphere Monitoring System, Gyrocompass, Radio, Sonar, Launchers, Torpedo tubes and handling equipment. Additionally, the Electronic Systems Review team will assist division 3-M Coordinators in administrative reviews, perform National Policy on the Control of Compromising Emanations (TEMPEST) inspections or small arms inspections if requested.

2.5 SYSTEM/COMPONENT MAINTENANCE PROGRAMS (SUBMARINES AND AIRCRAFT CARRIERS ONLY).

2.5.1 Advanced Equipment Repair Program (Submarines Only).

a. AERP is a system for providing new or refurbished non-nuclear components to support specific programmed industrial activity availability and Engineered Operating Cycle (EOC) maintenance requirements. A programmed requirement is one that is identified, budgeted and funded for ultimate end use on a specific submarine hull. Industrial activity availability and EOC requirements are defined as those assets necessary to support the accomplishment of a planned availability work package during scheduled CNO maintenance availabilities. Although similar in concept to the usual rotatable pool or repairable items, the AERP differs in that pool requirements are not determined by usage data. By its nature, the AERP is limited to items of significant value for which it would not be economical to stock on the basis of `normal' usage. Instead, requirements are specific and are determined by the overall schedule of submarine industrial activity availability and EOC requirements. Only so much material is provided as will meet the programmed needs of the specific ships involved. Range and depth of AERP assets will normally not exceed projected requirements for a two year period.

b. Components are furnished as Government Furnished Material to maintenance activities performing industrial activity availabilities and maintenance of submarines. The AERP provides the flexibility and speed-of-response required to ensure timely logistic support and engineering direction of complex maintenance planning.

c. Components selected for management under the AERP are those complex, high value items required to effect the accomplishment of programmed submarine industrial activity availability or EOC requirements in the shortest possible time. However, other factors may also affect the decision to manage certain items under the AERP. Reference (c) provides specific guidance for selection of components.

d. Various activities may initiate action to include additional components into the AERP. Such action may stem from independent study or the recognition of some Fleet requirement. In identifying potential AERP components, close coordination must be maintained with the Fleet and with the activity assigned responsibility for producing the availability work package for each submarine's availability. The final decision regarding inclusion of an item in the AERP rests with NAVSEA 92.

2.5.2 TRIDENT Planned Equipment Replacement Program (SSBN 726 Class Submarines Only). Shipboard equipment which requires significant maintenance during the planned operating cycle, industrial level maintenance, which is beyond the capability of Ship's Force, and which cannot be accomplished during the refit period (without unacceptable impact on other refit requirements), will be supported by TRIDENT Planned Equipment Repair (TRIPER) program. TRIPER equipment will be removed from the ship for refurbishment ashore, replaced with pre-tested, Ready for Issue units and the affected system restored to full operational condition prior to completion of the refit period. Replacement will be accomplished on a planned basis at intervals designed to preclude the failure of the equipment or significant degradation of its associated system. Deviations of greater or less than one refit from established TRIPER change-out periodicities shall require Immediate Superior In Command (ISIC) concurrence. A planned change to shelf stock TRIPER equipment will be accomplished only when sufficient change kits are available to effect the change in all units of a given model of the equipment held in shelf stock. Shelf stock TRIPER equipment is represented in configuration status accounting databases maintained by SUBMEPP.

2.5.3 Aircraft Carrier Planned Equipment Replacement Program (Nuclear Powered Aircraft Carriers Only). The Aircraft Carrier Planned Equipment Replacement program is designed to ensure that the planned incremental availabilities of the USS NIMITZ (CVN-68) class aircraft carriers are completed on time and within cost by having a pool of historically critical, hard-to-get equipment and components available both for planned replacement and for emergent issue if needed.

2.5.4 SEAWOLF Class Rotatable Pool Program.

a. The SEAWOLF Rotatable Pool is part of the class maintenance and availability planning process. The purpose of the program is to provide replacement components as scheduled by the Planned Maintenance Cycle Schedule, prior to failure or unacceptable degradation of installed components. Components which have been replaced are refurbished at a Designated Overhaul Point and returned in Ready for Issue status to repeat a similar cycle.

b. Reactor plant system and equipment under the cognizance of the NAVSEA Nuclear Propulsion Directorate (08) are excluded from the SEAWOLF Rotatable Pool Program.

c. SUBMEPP has been designated as the SEAWOLF Class Rotatable Pool Program Manager. Reference (d) provides specific guidance for managing the SEAWOLF Rotatable Pool program.

2.6 MODERNIZATION.

2.6.1 Fleet Modernization Program. The Fleet Modernization Program (FMP) is a CNO managed program to develop, plan, fund and accomplish Ship Alterations (SHIPALT), Machinery Alterations (MACHALT), Ordnance Alterations (ORDALT), Nuclear Alterations and Electronic Field Changes in accordance with policies mandated in reference (e). It is executed in accordance with Volume IV, Part I Chapter 2 of this manual and applies to all alterations to commissioned ships and craft of the Navy except as follows:

a. Alterations to those portions of naval nuclear propulsion plants and facilities under the cognizance of the NAVSEA 08 identified in reference (f).

b. Strategic Systems Program Alterations affecting the configuration and/or capabilities of systems and equipments under the cognizance of the Strategic Systems Program Office.

c. Temporary modifications required for mission support or installed for test and evaluation or research and development programs.

d. Alterations affecting configuration of hardware, software and support equipment of a TRIDENT system is under the cognizance of NAVSEA PMS 392.

2.6.2 Types of Ship Improvements. There are two types of improvements, each having their own approving authorities, managed under the FMP as outlined in reference (e).

a. Military Improvement. An improvement that results in a change of ship operational or military characteristics, qualities, or features, and increases the ability of the ship to perform its required operational capacities. Proposed military improvements are submitted to CNO (OP-03).

b. Technical Improvement. An improvement that results in a change to improve the safety of personnel and equipment and/or provides increased reliability, maintainability and efficiency of installed equipment. Proposed technical improvements are submitted to the cognizant NAVSEA program manager or the cognizant Naval Air Systems Command (NAVAIR) program manager for Aircraft Launch and Recovery Equipment.

2.6.3 Fleet Modernization Program Management Information System. FMP management functions are supported by a Fleet Modernization Program Management Information System (FMPMIS) containing all the planning and status information needed for timely and accurate decision making in evaluating proposed alterations. FMPMIS contains Ship Alteration Financial Execution, Ship Alteration Budget Reporting and Evaluation System and other management information systems supporting separately funded line items; i.e., ORDALTs, MACHALTs, etc. FMPMIS is the authoritative source of information used by FMP managers and activities to carry out their responsibilities in accordance with reference (e). All FMP managers are responsible to ensure that respective data contained in FMPMIS is current and accurate.

2.6.3.1 Proposed Alterations. Proposed alterations that have been approved are submitted to the cognizant NAVSEA program manager for development of a Justification/Cost Form. The Justification/Cost Form is the baseline document that consolidates all known technical material and cost information. Upon completion of the Justification/Cost Form the alteration will be given a number and placed in the Amalgamated Military and Technical Improvement Plan system for Title "K" and "KP" alterations or in the TYCOM Alteration Management System (TAMS) for Title "D" and "F" SHIPALTs.

2.6.3.2 Alteration Development. ORDALTs, MACHALTs and Electronic Field Changes are developed and programmed separately from SHIPALTs. ORDALTs are programmed and developed by references (g) and (h), MACHALTs in accordance with reference (i) and Electronic Field Changes in accordance with reference (j).

2.6.4 Alterations. Approved alterations are issued as SHIPALTs, MACHALTs, ORDALTs, Nuclear Alterations or Electronic Field Changes depending on application and classification.

2.7 INTEGRATED FLEET MAINTENANCE MANAGEMENT. Integrated Fleet Maintenance Management is the business management model that allows for continuous maintenance by providing a seamless interface between all associated processes. It provides for processing work candidates including storage and retrieval of historical data and feedback to improve the process. The intent is to have a standard management model applicable to all platforms at all maintenance levels encompassing the following:

a. Discover and document work.

b. Validate and diagnose work.

c. Integrate and screen work.

d. Estimate and task work.

e. Plan work.

f. Execute work.

g. Collect feedback and analyze data.

2.7.1 Continuous Maintenance. Continuous Maintenance is a process that involves the near continuous flow of maintenance candidates to the most appropriate level and maintenance activity for accomplishment. Timed to best support operations, it migrates from a centralized timed based batch process to a decentralized condition based nearly continuous process.

2.7.1.1 Continuous Screening Process. Continuous Screening is a process of screening work as it is discovered. Continuous Screening:

a. Begins with identification and documentation of work candidates.

b. Includes validation, estimation and integration of work candidates and the screening of work candidates to availabilities.

c. Ends with the assignment and release of an availability or individual work candidate to a specific maintenance activity for execution during a specific maintenance period.

2.7.1.2 Continuous Planning Process. Continuous Planning is a process in which work is planned when tasked. Continuous Planning:

a. Begins with tasking of a work candidate to a planning activity for preparation of a work specification and cost estimate.

b. Ends when the specification is approved for execution. There is overlap between Continuous Screening and Continuous Planning.

2.7.1.3 Continuous Execution Process. Continuous Execution is a process in which selected emergent and non emergent work candidates are executed outside of scheduled availabilities. Continuous Execution will not replace the current availability system. Availabilities will still be necessary to accomplish major repairs and extensive configuration changes, as well as provide the ship with a specific period of time to concentrate on maintenance and training. Continuous Execution will assist planning activities and repair activities in leveling their workload while providing the ships with a means of accomplishing repairs when needed with a minimum level of interruption to the ship's inport routine that is acceptable to the ship. The process is used when:

a. The work candidate is ready for execution.

b. Capacity exists in the selected repair activity.

c. Ship's inport schedule supports the required level of repair effort.

2.8 TECHNICAL ASSISTANCE.

2.8.1 Fleet Technical Support Center.

a. The Fleet Technical Support Centers (FTSC) provide direct support to Fleet and TYCOMs in matters of waterfront technical assistance, maintenance training and logistics services associated with the installation, operation, maintenance, and readiness of shipboard equipment and systems. The FTSCs promote Fleet readiness and maintenance self-sufficiency in shipboard systems and equipment through direct technical help in troubleshooting, maintenance and repair, on-the-job maintenance training, logistics reviews, and technical documentation support. These services help correct operational and maintenance problems which are beyond the technical capability or capacity of fleet units or FMAs.

b. References (k) and (l) fully describe policies and procedures for the FTSCs.

2.8.2 Ship Assessment, Groom and Evaluation.

a. This program is managed and funded by the TYCOM and provides technical assistance to Ship's Force personnel in maintaining a select list of shipboard equipment and systems.

b. Volume IV, Part I, Chapter 6 of this manual provides further explanation of this program.

2.8.3 Carrier and Field Service Unit.

a. Carrier and Field Service Unit is a branch of the Naval Air Warfare Center designed to provide technical assistance to Fleet personnel for all launch, recovery, and visual landing aids systems.

b. Volume IV, Part II, Chapter 1 of this manual provides further explanation of this program.

2.8.4 Elevator Support Unit.

a. Elevator Support Unit is an element of NAVSEA's Weapons and Cargo Elevator Improvement Program funded and scheduled by the TYCOM to provide technical assistance for the maintenance, modernization and repair of weapons and cargo handling elevators.

b. Volume IV, Part I, Chapter 19 of this manual provides further explanation of this program.

2.8.5 Waterfront Corrective Action Program.

a. Waterfront Corrective Action Program is a subprogram of the Shipboard Electromagnetic Compatibility Improvement Program, and is part of the FTSCs, designed to provide training and technical assistance to Ship's Force in Electromagnetic Interference recognition and reduction.

b. Volume IV, Part I, Chapter 4 of this manual provides further explanation of this program.

2.8.6 Intermediate Maintenance Activity Nuclear Planning Yard.

a. Intermediate Maintenance Activity Nuclear Planning Yards' charter is to improve the Fleets ability to perform nuclear maintenance. This is accomplished by the following:

(1) Training.

(2) Providing on-site technical support.

(3) Acting as corporate memory.

b. Intermediate Maintenance Activity Nuclear Planning Yard support should be coordinated through the respective Surface Nuclear Maintenance Training Group and, for submarines, coordinated through the parent ISIC.

2.9 PROPULSION PLANT MATERIAL CONDITION (NUCLEAR AIRCRAFT CARRIERS ONLY).

2.9.1 Purpose. This section contains requirements that provide a comprehensive approach to assessing and maintaining Nuclear Powered Aircraft Carrier (CVN) propulsion plant material condition. It uses incremental maintenance concepts to apply inspections, maintenance, training, depot and afloat assets toward the consistent identification, evaluation, tracking and correction of CVN propulsion plant material condition deficiencies. The program assigns specific duties to both Ship’s Force and the TYCOM's staff to ensure the ship has the assets, programs and support in place to effectively manage propulsion plant material condition over the life of the ship.

2.9.2 Applicability. The requirements of this section are primarily focused on CVNs. The programs and requirements of this section shall be applicable to other nuclear vessels and conventionally powered aircraft carriers as directed by TYCOMs.

2.9.3 Ship's Force Requirements.

2.9.3.1 Reactor Maintenance Officer. The Reactor Maintenance Officer (RMO) is the coordinator for the reactor department Maintenance Action Plan. Specific responsibilities include:

a. Coordinate with Reactor Department Principal Assistants to ensure divisions are maintaining current lists of material deficiencies. The RMO will review divisional Equipment Deficiency/Status Logs (EDL/ESL) monthly to ensure deficiencies are being documented.

b. Coordinate with Reactor Department Principal Assistants to ensure divisions are submitting work for inclusion into future availabilities and upkeeps to correct significant or overly burdensome material deficiencies.

c. Request assistance as necessary, via the TYCOM, to accomplish the nuclear and non-nuclear planned maintenance inspections discussed below.

d. Request training, via the TYCOM, to conduct material inspections and improve specific skills necessary to maintain material condition. The RMO shall be the single point of contact for scheduling TYCOM provided maintenance and inspection training.

e. Coordinate, via the TYCOM, the use of groom teams specified below.

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f. Coordinate, with Reactor Department Principal Assistants, to ensure divisions incorporate deficiency lists generated by groom and inspection teams into the Maintenance Action Plan.

g. Perform actions required for certification of Reactor Plant Support Systems that are required to be certified for principal propulsion plant evolutions in accordance with reference (y). A list of these components will be provided by the TYCOM. Prior to performing work on these components/systems, Ship's Force shall consult with the shipyard project team to ensure that a clear path to re-certification (or interim certification) is identified. The RMO will coordinate shipyard training for Reactor Department prior to the availability start date.

2.9.3.2 Training for Ship's Force. The TYCOM, in conjunction with other activities (e.g. Trident Training Facility, a Naval Shipyard, Fleet Maintenance Support Branch, Shore Intermediate Maintenance Activity), has developed specific training courses to enhance technical maintenance capabilities and inspection techniques. In addition, shipyard personnel can provide training on subjects such as lagging replacement, lock-wire installation and inspection techniques. Ship's Force requests for specific training topics (e.g. shipyard inspection training prior to conducting joint shipyard/Ship's Force Material Condition Assessment Inspection (MCAI) (detailed in Appendix A)) shall be provided to the TYCOM. Ship's Force should schedule this training early and ensure sufficient personnel are trained.

2.9.3.3 Maintenance Action Plan. Ship's Force (with assistance from the TYCOM and shipyard) will develop a plan that manages maintenance (preventive, corrective and emergent) and contains specific objectives to upgrade the propulsion plant material condition during availabilities and upkeeps utilizing the guidance of the CVN 68 Class Incremental Maintenance Plan, Sequencing Plan. The Maintenance Action Plan will span the entire ship's operational cycle. The Maintenance Action Plan is a comprehensive document that brings together information from many sources such as paragraphs 2.9.3.4 through 2.9.3.6 of this chapter and will include the following additional items:

a. Material Condition Upgrade Objectives. The ship working with the project team shall establish objectives, which will be identified, prioritized and integrated into the project schedule to ensure all parties are aware of the plan. Examples would include correction of minor oil leaks and lagging damage by a shipyard tiger team.

b. The Material Condition Assessment Process (MCAP) requires the project team in conjunction with Ship's Force to establish a timeline of inspections and actions relating to ship's material condition. This timeline shall be integrated into the Maintenance Action Plan. Appendix A is the baseline MCAP timeline and is provided for the project team's guidance.

2.9.3.4 Methods for Assessment of Material Condition. There are several methods used to periodically assess and improve the material condition of an aircraft carrier's propulsion plants outside of depot availabilities. The existing programs provided by the fleet commanders to improve material condition are addressed in Volume IV, Part I Chapter 6, of this manual. Other methods include:

a. Material inspections conducted by the Nuclear Propulsion Mobile Training Teams.

b. Material inspections conducted by the Board of Inspection and Survey.

c. Material inspections conducted by the Nuclear Propulsion Examining Board.

d. Periodic inspections conducted by shipyard engineering and inspection groups, usually in conjunction with availability planning. These inspections include Carrier Availability Planning System, Point of Entry Testing (POET), MCAIs and zone inspections of main machinery spaces.

e. Augmenting shipyard inspection teams with material and tradesmen to assist the ship with quick correction of the deficiencies identified.

f. Carrier Engineering Material Assessment Team coordinators groom systems that include Leslie valves, High Pressure Air Compressors, Low Pressure air systems, governor control systems, distilling plants, etc. The table shown in Appendix B is a compilation of propulsion plant inspections and references.

2.9.3.4.1 Attributes and Acceptance Standards for Material Condition Acceptance Inspections. The inspection criteria used shall be uniform and consistent to provide an accurate assessment of the material condition of the propulsion plant.

a. Reference (y) shall be used to inspect non-nuclear propulsion systems and components.

b. References (z), (aa) and (ab) shall be used to inspect nuclear propulsion systems and components. Inspection criteria for nuclear mechanical systems is listed in Appendix C. Inspection criteria for nuclear electrical systems is listed in reference (aa).

c. TYCOM shall arrange for shipyard assistance in the training of personnel and performance of these inspections performed outside of an availability.

2.9.3.5 Ship's Force Maintenance Program. Each Reactor Department of CVNs will maintain a current program to support the identification and correction of material condition discrepancies. This program should be tailored for each ship. The below listed mandatory plans are areas associated with propulsion plant maintenance that require special attention. It is acceptable to organize the ship's EDL/ESL in sections corresponding to categories associated with the plans/lists shown below. Each ship shall format their plans and lists as directed by the Reactor Officer.

a. Valve Packing Inspection and Repacking Plan. The ship will maintain a plan that will include the inspection of all valves having less than two valve isolation from high energy systems to ensure each valve is inspected annually. Prior to availabilities that will include a plant cool down, particular attention should be given to steam generator isolation valves, blowdown, sampling and 500 series main feed and steam system valves.

b. Structural Preservation Plan. The ship will maintain a plan that identifies areas of the propulsion plant and areas exposed to salt spray (such as ventilation spaces and weather deck fittings) to be inspected for structural corrosion on a rotating basis. Particular emphasis should be placed on regular review of equipment foundations and low traffic areas.

c. Lagging and Insulation Plan. The ship will maintain a plan to inspect and upgrade worn lagging and insulation using the guidance of references (a), (b), and the CVN 68 Class Incremental Maintenance Plan, Sequencing Plan. The plan should include a separate list of lagging removed by Ship's Force as a result of maintenance, wetting or becoming oil soaked.

d. Paint and Preservation Plan. The ship will maintain a plan that identifies the strategy and goals for ensuring the paint and preservation status of propulsion plant spaces is maintained over time, with particular emphasis on the work that will be done during availabilities. The plan should follow the guidance of the CVN 68 Class Incremental Maintenance Plan, Sequencing Plan and include a list of propulsion plant spaces (divided into more manageable areas in the case of large spaces like Reactor Rooms or Main Machinery Rooms), the date last painted/preserved and the date due for inspection. Bilge cleaning and preservation is addressed separately.

e. Bilge Preservation Plan. The ship will maintain a plan to inspect bilges and address deficiencies. The ship shall use the zones and inspection criteria contained in the CVN 68 Class Depot Maintenance Requirement Card MRC 631-01.

f. Oil Leak Identification and Correction Plan. The ship will maintain a plan to identify and correct oil leaks, with particular attention to areas underneath the main engines, turbine generators, lube oil purifiers and in the vicinity of lube oil pumps. The plan should divide the propulsion plant spaces into zones to ensure all areas are inspected annually. The list of oil leaks should be prioritized for correction.

g. The ship will maintain in the EDL/ESL a list of at least the following typical, non-mandatory deficiencies:

(1) missing/damaged label plates

(2) defective spray shields

(3) deck plate screws

(4) lockwire deficiencies

(5) mixed/missing fasteners

(6) deficient valve hand wheels

(7) loose/damaged stuffing tubes

These items will be continuously identified and corrected. The TYCOM will provide funding for Restricted Availabilities and Docking Planned Incremental Availabilities for shipyard or other activity to provide assistance in resolution.

h. Existing Acceptable-As-Is items. An electronic database of items found "acceptable as is" will be generated by the shipyard during a depot availability. The ship will maintain custody of this electronic database outside of the depot availability. The database will identify the equipment, its location, the condition and reference the technical documentation that accepted the condition. The RMO will ensure the database is kept up to date between depot availability periods. Shipyards will use the database during depot availabilities to preclude repetitive research for acceptable, existing conditions that would otherwise be considered deficiencies. At the completion of depot availabilities, the shipyard will provide the ship with an updated version of the database that includes new items and deletes old items, as applicable, based on the results of material condition reviews and shipyard maintenance. The shipyard will also provide the ship with electronic copies of all waiver letters, Liaison Action Request responses or other acceptance documentation obtained during the availability.

i. Items Removed From the Ship List. During availabilities, the ship will maintain a list of all Ship's Force responsible components removed from the ship for repair outside the shipyard so the method of shipment for return to the ship can be monitored to support the project schedule.

2.9.3.6 Propulsion Plant Planned Maintenance. Reference (ac) lists the planned maintenance pertinent to reactor systems and includes numerous inspections and checks to review material condition. It can be advantageous for the ship to request shipyard quality control inspector or production shop assistance when conducting the annual inspections of the Reactor Compartment and Pressurizer Shed. In addition, the ship should consider requesting assistance periodically when inspecting piping hangars, piping and supports in bilges, load centers and reactor vessel shielding.

2.9.4 Type Commander Responsibilities.

a. Budget and plan for correction of both typical recurring, non-mandatory deficiencies and other material deficiencies during the Inter-Deployment Training Cycle.

b. Assign the groom teams listed above as necessary, to assist Ship's Force in maintaining the material condition of the propulsion plant.

c. Provide the maintenance and inspection training requested by Ship's Force.

d. Provide training for RMOs so they understand common maintenance problems among carriers, the requirements of this chapter and how to help their reactor department plan for availabilities.

e. Maintain, with Ship's Force and shipyard input, an Availability Parts Support List during availabilities, containing ship's special parts and routinely required support equipment necessary to conduct both Ship's Force and shipyard work (e.g., breaker locking clips, valve locking devices, tygon tubing, flexes, thread protectors, foreign material exclusion plugs, valve stems). This list will aid planning for future availabilities by ensuring necessary parts are ordered early so that production work will not be disrupted.

f. Meet quarterly with the Reactor Officer and RMO to review the maintenance program and discuss the ship's material condition and Maintenance Action Plan.

g. Provide timely review and schedule correction for deficiencies identified during the inspection and grooms of paragraph 2.9.5 of this chapter.

2.9.4.1 Type Commander Training Group Inspection Visits. The Mobile Training Team (MTT) should periodically review the status of the CVN Material Condition Program to ensure the ship has an effective program for identifying and correcting material condition deficiencies. Care must be taken not to critique lists that are too large, since this chapter specifically encourages ship's to document deficiencies that are beyond their capability or too numerous to fix considering the ship's operational commitments. Other attributes that should be checked include:

a. Ensure that the Reactor Department has current records documenting each of the programs specified in paragraph 2.9.3.5 of this chapter.

b. Ensure that the deficiency lists are current and accurate based on the Nuclear Power (NP)MTT material condition inspections (i.e., the material condition deficiencies noted by NPMTT are identified in the ship's EDL/ESL and the plans for correcting the deficiencies are realistic).

c. Ensure that items have not remained on the deficiency lists for an excessive amount of time (i.e., the turnover rate of the deficiencies). Large backlogs indicate the need for increased TYCOM assistance to correct deficiencies.

2.9.5 Assessing Deficiency Impact and Scheduling Corrective Action. In order to determine whether correction of a deficiency is mandatory, shipyard and Reactor Department personnel must review applicable plans and specifications and consider such factors as type and severity of the defect, service of the component involved, accessibility of the defect for repair during shipyard availability versus upkeep period, schedule impact, effect on personnel or equipment safety, impact on system operation and cleanliness or preservation to restore appearance versus resistance to corrosion. Deficiencies that are primarily cosmetic are ideal candidates for deferral consideration. When material condition deficiencies are identified outside CNO scheduled availabilities, the Reactor Officer determines whether corrective action is necessary and when it should be accomplished. Inside CNO scheduled availabilities, follow the guidance contained in Appendix A.

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APPENDIX A
MATERIAL CONDITION ASSESSMENT PROCESS TIMELINE

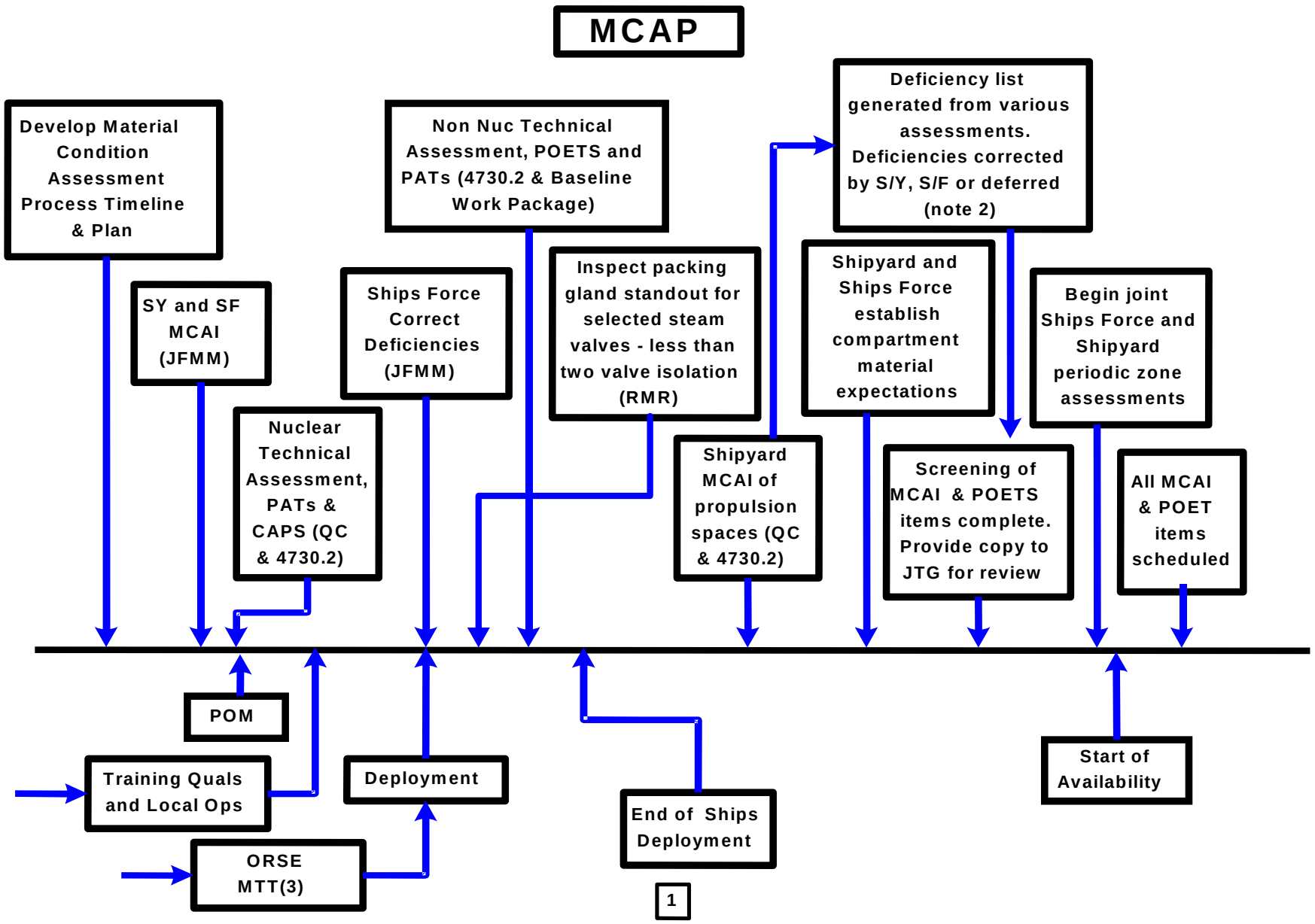
PURPOSE: The timeline of this Appendix lays out the material condition assessment process throughout the ship's Inter-Deployment Training Cycle. The plan also includes descriptions of the various events that occur and who is responsible for the actions outlined. With this information, the various stakeholders in the project team can develop a clear understanding of the process. This will encourage better communication, planning and completion of all required actions.

This timeline is provided as a guide to be used for development of a CVN 68 class ship specific timeline for a Planned Incremental Availability or Docking Planned Incremental Availability. The timeline is not applicable to a Refueling Complex Overhaul availability.

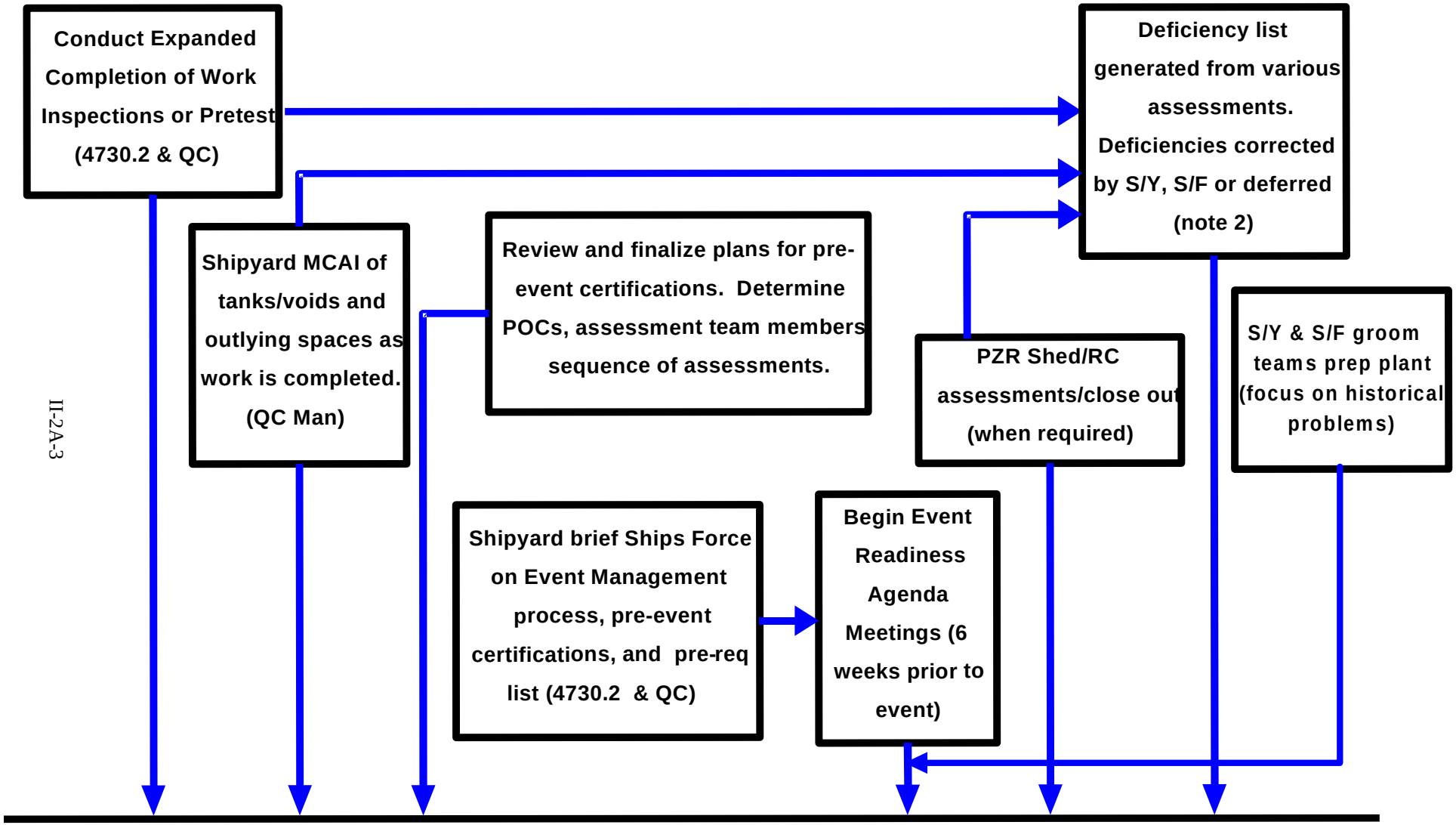
Notes:

1. The following timeline is a generic version of a Project Material Condition Assessment Process. The project team will develop a timeline and plan specific to each availability taking into account the ship's schedule (deployment, transit periods, upkeeps and early start periods). The plan includes descriptions of the events (purpose of inspection/action, which activity performs the action, results, etc). The timeline and plan allows the Project Team (shipyards, Ship's Force, TYCOM) to develop a clear understanding of the process. Timeline should be developed to present at the first project planning meeting (target 15 months prior to start of availability).

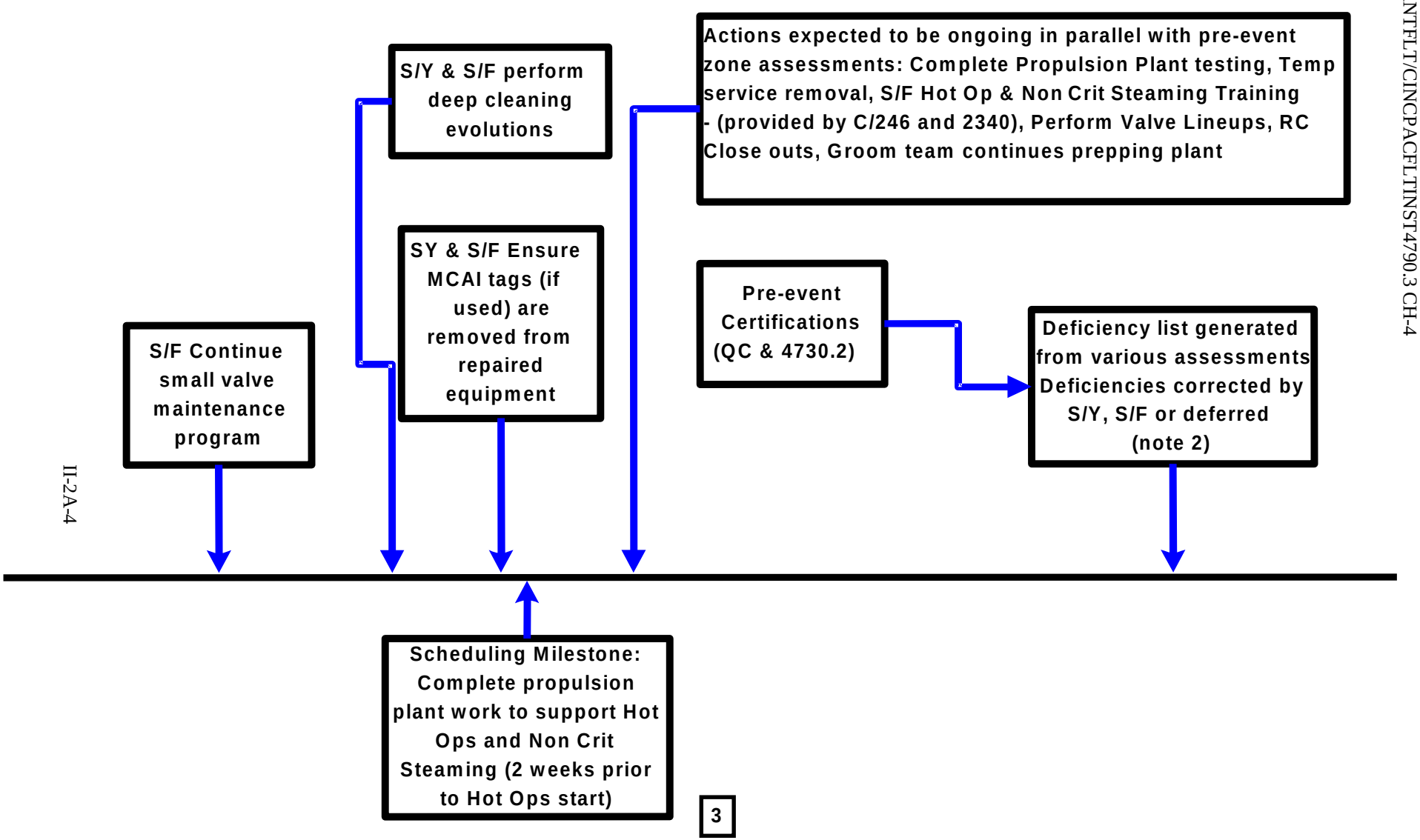
2. Deficiencies identified during the MCAI and following assessments will be evaluated per the attached Deficiency Resolution Flowchart.

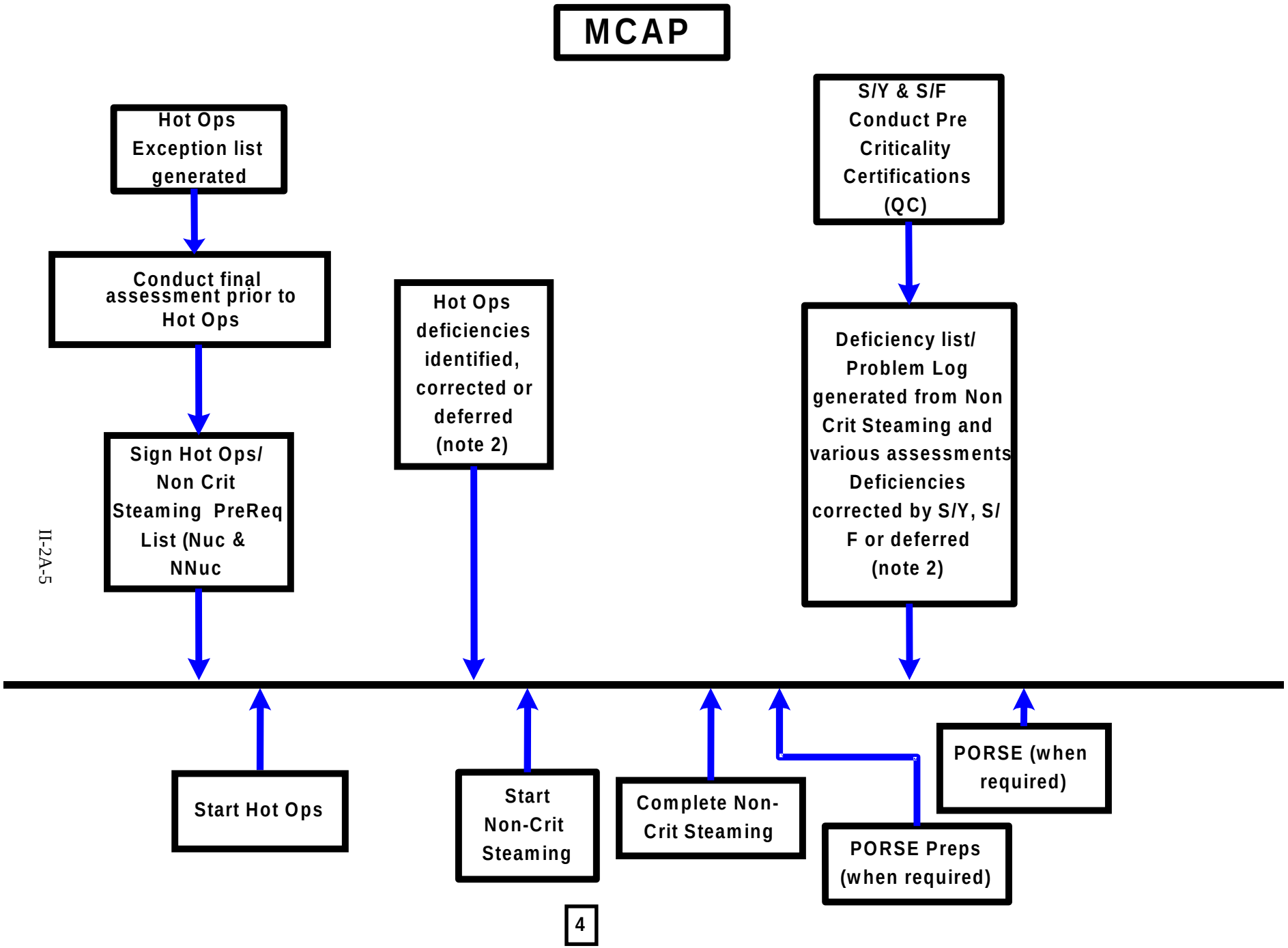

MCAP
Develop Material Condition Assessment Process Timeline & Plan
SY and SF MCAI (JFMM)
Nuclear Technical Assessment, PATs & CAPS (QC & 4730.2)
Ships Force Correct Deficiencies (JFMM)
Non Nuc Technical Assessment, POETS and PATs (4730.2 & Baseline Work Package)
Inspect packing gland standout for selected steam valves - less than two valve isolation (RMR)
Shipyard MCAI of propulsion spaces (QC & 4730.2)
Deficiency list generated from various assessments. Deficiencies corrected by S/Y, S/F or deferred (note 2)
Shipyard and Ships Force establish compartment material expectations
Screening of MCAI & POETS items complete. Provide copy to JTG for review
Begin joint Ships Force and Shipyard periodic zone assessments
All MCAI & POET items scheduled
POM
Training Quals and Local Ops
ORSE MTT(3)
Deployment
End of Ships Deployment
Start of Availability
1

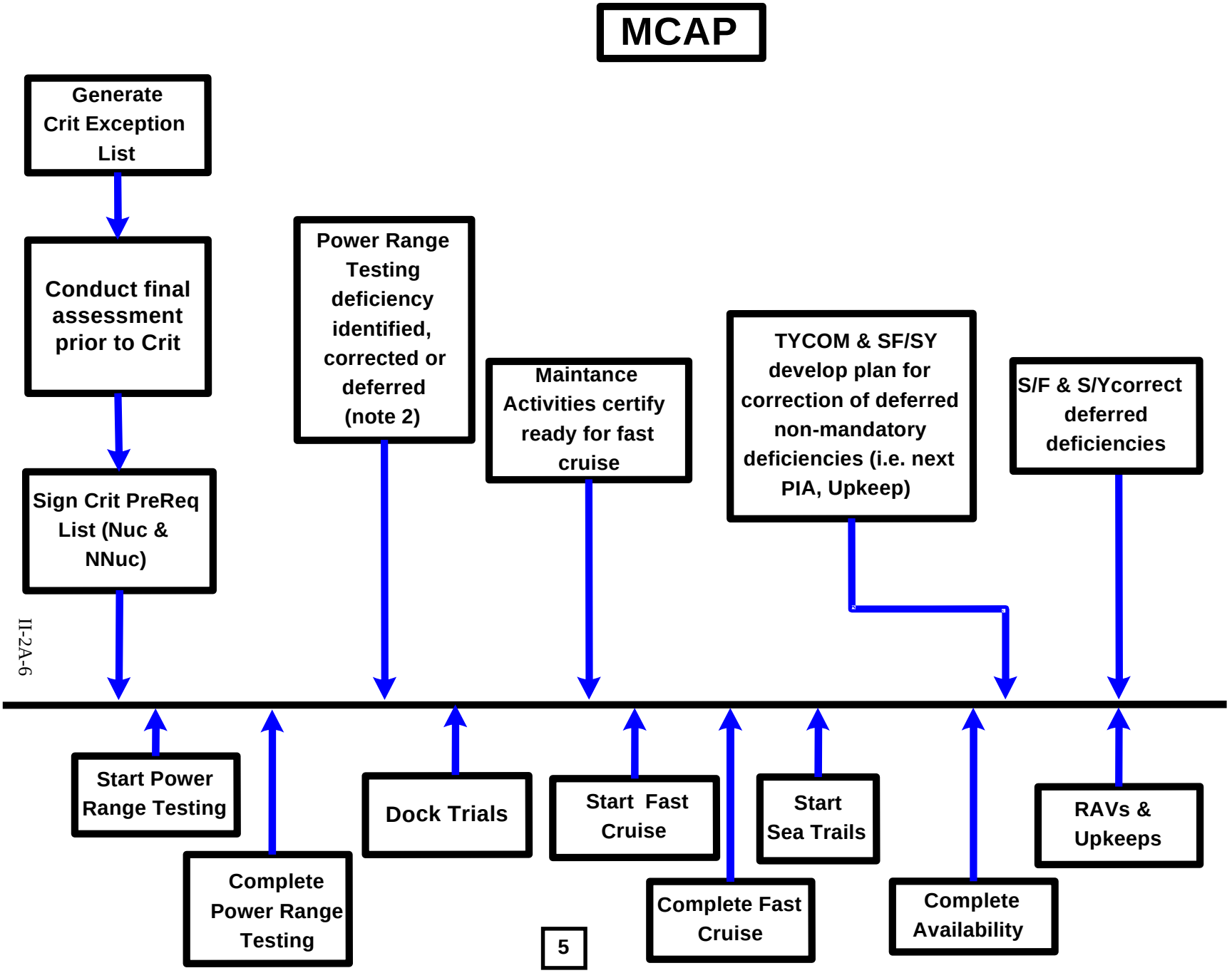
MCAP


Conduct Expanded Completion of Work Inspections or Pretest (4730.2 & QC)
Deficiency list generated from various assessments. Deficiencies corrected by S/Y, S/F or deferred (note 2)
Shipyard MCAI of tanks/voids and outlying spaces as work is completed. (QC Man)
Review and finalize plans for pre-event certifications. Determine POCs, assessment team members sequence of assessments.
PZR Shed/RC assessments/close out (when required)
S/Y & S/F groom teams prep plant (focus on historical problems)
Shipyard brief Ships Force on Event Management process, pre-event certifications, and pre-req list (4730.2 & QC)
Begin Event Readiness Agenda Meetings (6 weeks prior to event)

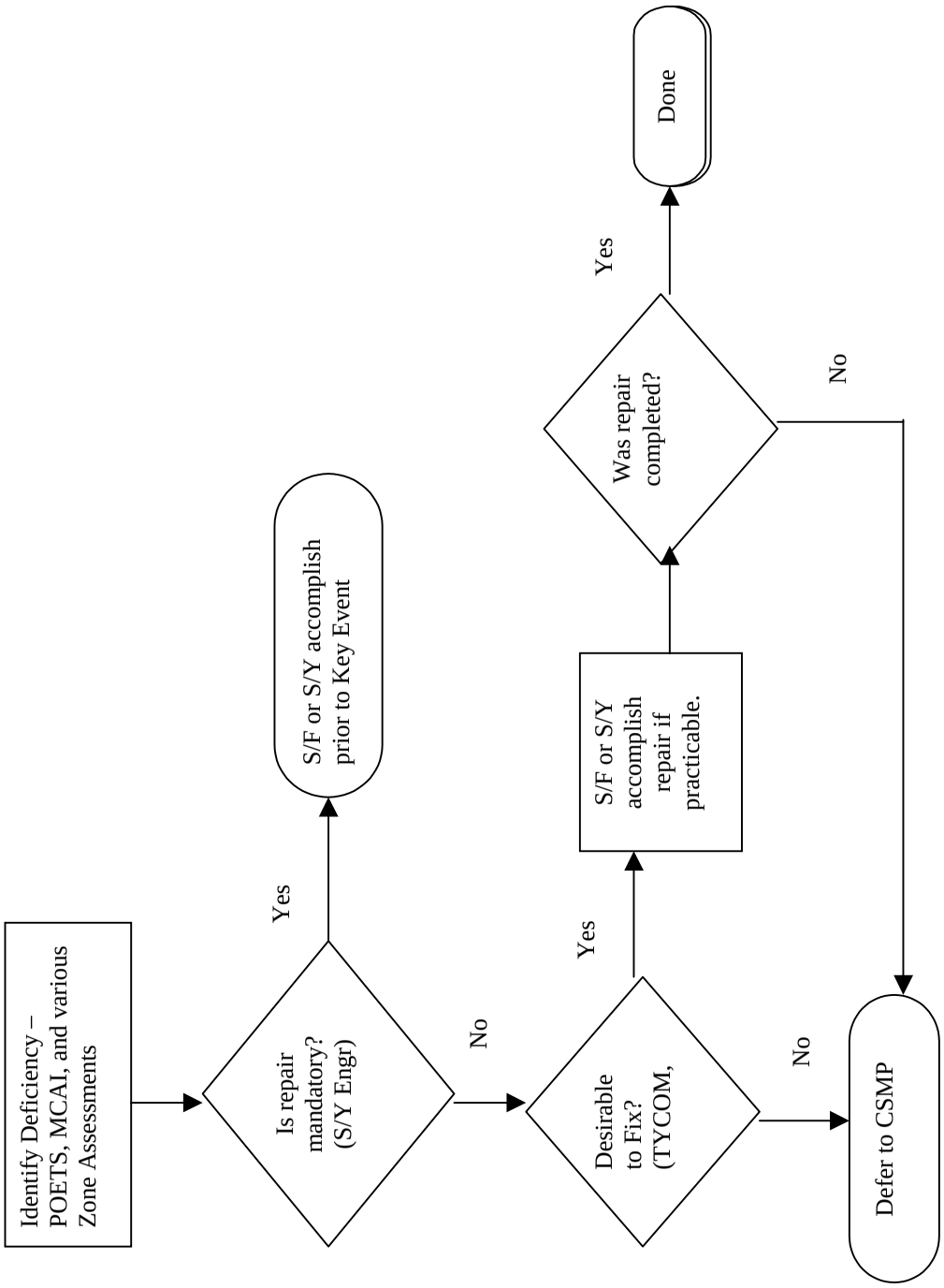
MCAP


S/Y & S/F perform deep cleaning evolutions
Actions expected to be ongoing in parallel with pre-event zone assessments: Complete Propulsion Plant testing, Temp service removal, S/F Hot Op & Non Crit Steaming Training - (provided by C/246 and 2340), Perform Valve Lineups, RC Close outs, Groom team continues prepping plant
SY & S/F Ensure MCAI tags (if used) are removed from repaired equipment
Pre-event Certifications (QC & 4730.2)
Deficiency list generated from various assessments Deficiencies corrected by S/Y, S/F or deferred (note 2)
S/F Continue small valve maintenance program
Scheduling Milestone: Complete propulsion plant work to support Hot Ops and Non Crit Steaming (2 weeks prior to Hot Ops start)
3


MCAP
Hot Ops Exception list generated
Conduct final assessment prior to Hot Ops
Sign Hot Ops/ Non Crit Steaming PreReq List (Nuc & NNuc
Hot Ops deficiencies identified, corrected or deferred (note 2)
S/Y & S/F Conduct Pre Criticality Certifications (QC)
Deficiency list/ Problem Log generated from Non Crit Steaming and various assessments Deficiencies corrected by S/Y, S/F or deferred (note 2)
Start Hot Ops
Start Non-Crit Steaming
Complete Non-Crit Steaming
PORSE Preps (when required)
PORSE (when required)
4


MCAP
Generate Crit Exception List
Conduct final assessment prior to Crit
Sign Crit PreReq List (Nuc & NNuc)
Power Range Testing deficiency identified, corrected or deferred (note 2)
Maintance Activities certify ready for fast cruise
TYCOM & SF/SY develop plan for correction of deferred non-mandatory deficiencies (i.e. next PIA, Upkeep)
S/F & S/Ycorrect deferred deficiencies
Start Power Range Testing
Complete Power Range Testing
Dock Trials
Start Fast Cruise
Complete Fast Cruise
Start Sea Trails
Complete Availability
RAVs & Upkeeps
5

DEFICIENCY RESOLUTION FLOWCHART



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APPENDIX B
PROPULSION PLANT INSPECTIONS

			REQUIREMENT			WHO			
ASSESSMENT/ INSPECTION/ TEST	REFERENCE & PARAGRAPH # OF REQUIREMENT(S)	TYPE OF ASSESSMENT	"WHY"	WHEN	WHEN TYPICALLY CONDUCTED	PERFORMS	EVALUATES	INSPECTION/ ACCEPTANCE CRITERIA	COMMENTS
CAPS	A	OPERATIONAL TESTING	DEVELOP IWP	PRE-WDC	A-12 TO A-8	S/Y, S/F	S/Y (ENGR)	A,BC,G,J	
PRE-DEPLOYMENT NUCLEAR TECH ASSESSMENT	C (9020-0-G) & O (3)	VISUAL ZONE INSPECTION & RECORDS REVIEW	VALIDATE IWP	POM	BY A-9	S/Y (NUC ENGR)	S/Y (NUC ENGR)	A,B,C,D,E,F,G,H	
PROPULSION PLANT **GROOM TEAM	P	DEFINED BY TYCOM	MAINTAIN HIGH LEVEL OF MATERIAL CONDITION	TYCOM TASKING	A-9	FTSC, CEMAT	TYCOM	B,D,F,G	GROOM TEAMS ARE NOT CURRENTLY BEING USED
MCA TESTING	L, S (#), U	COMPONENT VISUAL INSPECTION & VIBRATION ANALYSIS	DEVELOP IWP	PRE-WDC	A-8 TO A-4	PERA CV, SF	PERA CV, SF	B	FOCUS IS ON VIBRATION ANALYSIS. COMPONENT LEVEL ONLY.
MTT	NONE	OPERATIONAL & VISUAL	ORSE/PORSE PREPS	ROUTINE (QUARTERLY)	A-8 TO A-4	NPMTT	NPMTT	ALL	
ORSE	M	OPERATIONAL & VISUAL	OPNAV, NRC SAFEGUARD INSPECTION	EVERY 12 PLUS OR MINUS 3 MOS	DURING DEPLOYMENT (NEAR THE END)	NPEB	NPEB	ALL	
INSURV (MATERIAL CONDITION ONLY)	N, Q	OPERATIONAL & VISUAL (UMI)	LIFECYCLE ASSESSMENT	36 - 54 MOS	PRE-DEPLOYMENT (POST AVAIL)	BOARD OF INSPECTION AND SURVEY	BOARDOF INSPECTION AND SURVEY	ALL	FREQUENTLY GETS PERFORMED AT TIMES OTHER THAN PRE-DEPLOYMENT
NON-NUCLEAR POET	R	COMPONENT VISUAL INSPECTION & OPERATIONAL TESTING	VALIDATES IWP & COMPONENT RELIABILITY	PRE-AVAILABILITY	RETURN TRANSIT FROM DEPLOYMENT (A-2 TO A-4)	S/Y & S/F	S/Y (ENGR)	A,B,D,F,J,K	SOME GROOMING ALSO GETS PERFORMED DURING POET. REQUIREMENTS FOR POET NOT INVOKED AT PRIVATE YARDS
POST-DEPLOYMENT NUCLEAR TECH ASSESSMENT	C (9020-0-G) & O (3)	VISUAL ZONE INSPECTION & RECORDS REVIEW	VALIDATE IWP	PRE-AVAILABILITY	AFTER RETURN FROM DEPLOYMENT	S/Y (NUC ENGR)	S/Y (NUC ENGR)	A,B,C,D,E,F,G,H	
NON-NUCLEAR TECH ASSESSMENT	K (3.a, 4.b(1))	VISUAL ZONE INSPECTION & RECORDS REVIEW	VALIDATE IWP	PRE-AVAILABILITY	AFTER RETURN FROM DEPLOYMENT	S/Y (ENGR)	S/Y (ENGR)	A,B,D,F,J,K	
PMS	A, S	VARIOUS	MAINTAIN MATERIAL CONDITION	CONTINUOUS	CONTINUOUS	S/F	S/F	A,S	
NUCLEAR PRETEST INSPECTION	O (3)	VISUAL OF WORK PERFORMED	CERTIFY READINESS FOR TESTING	PRE-TEST	DURING AVAIL	S/Y (NUC INSP)	S/Y (NUC ENGR)	DETERMINED BY NEO	
NON-NUCLEAR PRETEST INSPECTION	K (4.b(1)(b))	VISUAL OF WORK PERFORMED	CERTIFY READINESS FOR TESTING	PRE-TEST	DURING AVAIL	S/Y (QA)	S/Y (ENGR)	K	
PORSE	T (6.a)	VISUAL ZONE INSPECTION & RECORD REVIEW	OPNAV, NRC SAFEGUARD	PRE-CRIT	PRIOR TO REACTOR START-UP WHILE IN SY	NPEB	NPEB	ALL	
PRE-CRITICAL WALK-THRU/**GROOM TEAM	LOCAL INSTRUCTIONS INVOKE	VISUAL ZONE INSPECTION	VALIDATES PROPULSION PLANT MATERIAL CONDITION FOR CRITICAL OPERATIONS	NOT REQUIRED	PRIOR TO CRIT	S/F & S/Y (PROJ, ENGR, SS, NRRO)	S/Y (ENGR)	SPECIFIED IN LOCAL INSTRUCTIONS	
NUCLEAR PLANT CERTIFICATION	C, O, T	VISUAL ZONE INSPECTION	CERTIFY NUCLEAR SYSTEMS READY FOR CRITICAL OPERATIONS	PRE-CRIT, POST MAINTENANCE	PRIOR TO CRIT	S/Y (NUC INSP)	S/Y (NUC ENGR)	DETERMINED BY NEO	

References:

A) NAVSEA 0989-026-1000
B) Component Technical Manuals
C) NAVSEA 0989-043-0000
D) Various System Diagrams & Piping Plans
E) NAVSEA Instructions (9210.18, 9210.36, Etc.)
F) Military Standards (MIL-STD-767, MIL-STD-2041, Etc.)
G) NAVSEA Manuals 389-0317, 250-1500-1, 389-0288, 0989-150-0000
H) Off-Yard Correspondence
I) OPNAVINST C9210.2
J) NAVSEA 0989-036-0000
K) NAVSEAINST 4730.2A
L) PERA(CV) Tasking Letter, 4710 (series)
M) OPNAVINST 3540.3D
N) INSURVINST 4730.1A
O) NAVSEA 0989-062-4000
P) CINCLANTFLT/CINCPACFLTINST 4790.3, Volume IV, Chapter 6
Q) CINCLANTFLT/CINCPACFLTINST 4790.3, Volume IV, Chapter 10
R) S9220-AC-MAN-010
S) OPNAVINST 4790.4
T) OPNAVINST 9080.3G
U) CINCLANTFLT/CINCPACFLTINST 4790.3, Volume II, Chapter 2, Paragraph 2.4.4

** PERA CV INCREMENTAL MAINTENANCE PROGRAM MANUAL SHOWS RECOMMENDED GROOM TIMELINE

MCA COVERED BY PMS, e.g.: MIP 2550/003-76 FOR MAIN FEED PUMPS, SYSCOM MRC 84 C1ZQ N APPLIES

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APPENDIX C
SCOPE OF VISUAL INSPECTIONS OF REACTOR PLANT FLUID SYSTEMS

INSULATION	- Wetted - Damaged - Missing
HANGERS	- Installed hangers are connected/welded and not damaged - Verify correct thread engagement on fasteners - Liners are acceptable
PIPING AND COMPONENTS	- Leakage - Arc strikes - Significant surface discontinuities - Corrosion/pitting - Dents, bends, visible cracks - Missing/damaged locking devices - Soundshorts (if applicable) - Missing/damaged/incorrect label plates - Proper clearance between vent and drain lines and associated funnels, funnel misalignment and clogged screens - Damaged or out of calibration gages and thermometers - Inadequate preservation - Foreign material on outside of piping/components
MECHANICAL CONNECTIONS	- Leaks - Missing or loose fasteners - Incorrect material (e.g., dissimilar materials) - Proper thread engagement - Misaligned flanged joints
VALVES	- Missing or damaged valve caps or vent plugs - Leaks - Loose, missing or non-functional handwheels - Damaged valve position indicators - Missing or damaged fasteners - Permanent identification of handwheels by system number and color coding (if required) - Bent stems - Packing glands with little or no remaining adjustment - Cocked packing glands - Corrosion
FOUNDATIONS	- Obvious damage - Corrosion/cracks - Integrity of attachment welds - Missing/loose fasteners and/or locking devices
LOCKING DEVICES	- Damaged, where installed - Serve intended function

SHIELDING	- Damaged shielding - Damaged or missing radiation area exclusion barriers (if applicable) - Corrosion/leaking of canning plate materials - Damaged viewing windows or periscopes - Missing/loose fasteners	

VOLUME II

CHAPTER 3

CHIEF OF NAVAL OPERATIONS SCHEDULED MAINTENANCE AVAILABILITIES

REFERENCES.

(a) PERA(CV)INST 4711.1 - Aircraft Carrier Availability Planning Milestone System
(b) OPNAVINST C3000.5 - Operation of Naval Nuclear Powered Ships
(c) OPNAVNOTE 4700 - Notional Intervals, Durations, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships
(d) OPNAVINST 4700.38 - Berthing and Messing During CNO Scheduled Maintenance Availabilities
(e) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy
(f) COMSUBLANT/COMSUBPACNOTE C3120 - Submarine Operating Restrictions and Depth Authorizations
(g) OPNAVINST 3120.33 - Submarine Extended Operating Cycle (SEOC) Program
(h) NAVSEA S9086-7G-STM-010 - NSTM Chapter 997 (Docking Instructions and Routine Work in Dry Dock)
(i) NAVSEAINST 4441.2 - Changes to Coordinated Shipboard Allowance List (COSAL); Procedures for
(j) COMNAVAIRLANTINST 9090.2 - Conduct of Shipyard Trials and Inspections Incident to Service Life Extension Program (SLEP), Overhauls or Availabilities of Conventionally Powered Aircraft Carriers
(k) COMNAVSURFLANT/COMNAVSURFPACINST 3502.2 - Surface Force Training Manual
(l) COMNAVAIRLANT/COMNAVAIRPACINST 3500.20 - Aircraft Carrier Training and Readiness Manual
(m) CINCPACFLT/CINCLANTFLTINST 3540.2 - Fleet Engineering Readiness Process
(n) CINCPACFLT/CINCLANTFLTINST 3540.9 - Propulsion Examining Board Assessment and Certification Guide
(o) COMNAVAIRLANTINST 9080.2 - Conduct of Trials and Inspections Incident to Construction, Overhauls or Availabilities of Nuclear Powered Aircraft Carriers (CVN)
(p) OPNAVINST 9080.3 - Procedures for Tests and Trials of Navy Nuclear Powered Ships Under Construction, Modernization, Conversion, Refueling and Overhaul
(q) OPNAVINST 3540.3 - Naval Nuclear Propulsion Examining Boards
(r) OPNAVINST C9210.2 - Engineering Department Manual for Naval Nuclear Propulsion Plants
(s) COMSUBLANT OPORD 2000/COMSUBPAC OPORD 201
(t) NAVSEA S9086-DA-STM-000 - NSTM Chapter 100 (Hull Structures)
(u) NAVSEA S9086-C4-STM-000 - NSTM Chapter 094 (Trials)
(v) NAVSEA 0924-LP-062-0010 - Submarine Safety (SUBSAFE) Requirements Manual
(w) COMSUBLANT/COMSUBPACINST C3500.1 - Submarine Force Training Manual
(x) OPNAVINST 9110.1 - Submarine Test and Operating Depths; Policy Concerning
(y) NAVSEAINST 7670.1 - Navy Industrial Fund (NIF) Financial Management Systems and Procedures Manual
(z) COMSUBLANTINST 5400.4 - Submarine Force, U.S. Atlantic Fleet Regulations
(aa) COMSUBPACINST 5400.7 - Submarine Force, U.S. Pacific Fleet Regulations
(ab) CINCLANTFLT OPORD 2000/CINCPACFLT OPORD 201
(ac) NAVSEAINST C9094.2 - Submarine Valve Operation Requirements for Builders and Post Overhaul Sea Trial Test Dives

(ad) OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
(ae) NAVSEAINST C9210.30 - Procedures for Administration of Nuclear Reactor Plant Planned Maintenance and Tender Nuclear Support Facilities Planned Maintenance on Ships
(af) SSPINST 4700.1 - Planned Maintenance Management Program for Fleet Ballistic Missile and Strategic Weapon Systems Equipments and Associated Material
(ag) OPNAVINST 4700.7 - Maintenance Policy For Naval Ships
(ah) CINCLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
(ai) CINCPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
(aj) NAVSEA 0989-LP-043-0000 - Surface Ship General Reactor Plant Overhaul and Repair Specifications
(ak) OPNAVINST 3540.4 - Propulsion Examining Boards for Conventionally Powered Ships
(al) NAVSEA 0989-LP-037-2000 - Commissioned Submarine General Reactor Plant Overhaul and Repair Specifications

LISTING OF APPENDICES.

A Typical CNO Availability Planning Milestones (Submarines Only)
B Typical CNO Availability Planning Milestones (Surface Force Only)
C Typical CNO Availability Planning Milestones (Aircraft Carriers Only)
D Sample TYCOM Message Concerning DSRS Support Services for Industrial Activity Availabilities of Less Than Six Months Duration (Submarines Only)
E Sample DSRS Support Services Message for Industrial Activity Availabilities Greater Than Six Months Duration (Submarines Only)
F Suggested Guidelines for Forces Afloat Review of Availability Work Packages
G Monitoring Procedures (Surface Ships Only)
H Sample ISIC Message to TYCOM Concerning Crew Certification (Submarines Only)
I SITREP/Progress Report
J Sample New Work Forwarding Letter and Index
K Suggested Message Format for a New Work Candidate
L Minimum Dock Trials Requirements (Surface Ships Only)
M Sample Ship's Request for Permission to Commence Fast Cruise (Surface Ships Only)
N Minimum Fast Cruise Requirements (Surface Ships Only)
O Sample Ship's Report of Fast Cruise Completion (Surface Ships Only)
P Minimum Tests to be Performed During Sea Trials (Surface Ships Only)
Q Sample Supervising Authority Readiness for Sea Trial Message (Surface Ships Only)
R Major Trial and Inspection Milestones for Industrial Activity Availabilities Less Than Six Months Duration (Submarines Only)
S Sample ISIC Message to TYCOM Concerning Material Certification Prior to Sea Trials for CNO Scheduled Availabilities of Less Than Six Months Duration (Submarines Only)
T Major Trial and Inspection Milestones for Industrial Activity Availabilities Greater Than Six Months Duration (Submarines Only)
U Sample TYCOM Message to Ship Concerning Completion Prerequisites for Availabilities of Greater Than Six Months Duration (Submarines Only)
V Minimum Dock Trials Requirements (Submarines Only)
W Minimum Fast Cruise Requirements (Submarines Only)
X Sample TYCOM Message to Ship Concerning Authorization for Sea Trials Following CNO Scheduled Availability of Less Than Six Months
Y Minimum Sea Trials Requirements for Industrial Activity Availabilities Less Than Six Months Duration (Submarines Only)

Z **Sample ISIC Message to TYCOM Concerning Ship SUBSAFE Material Condition and Depth Recommendation for Follow-On Sea Trials (Submarines Only)**
AA **Sample TYCOM Message to ISIC Concerning Follow-On Sea Trials Depth Authorization for CNO Scheduled Availabilities of Less Than Six Months Duration (Submarines Only)**
AB Sample NAVSEA Message to TYCOM Concerning SUBSAFE Material Condition Readiness and Depth Recommendation for Sea Trials (Submarines Only)
AC Sample Supervising Authority Message to NAVSEA and TYCOM Concerning SUBSAFE and Material Condition Readiness for Fast Cruise/Sea Trials (Submarines Only)
AD Sample Supervising Authority Message to TYCOM and NAVSEA Concerning Fast Cruise Completion and SUBSAFE Material Condition Readiness for Sea Trials (Submarines Only)
AE Sample Supervising Authority Message to NAVSEA Concerning Readiness for Follow-On Sea Trials in Cases Where a Previous Sea Trial was Aborted or Corrective Actions for Sea Trial Deficiencies Require an Additional Deep Dive (Submarines Only)
AF Sample Supervising Authority Message to NAVSEA Concerning SUBSAFE Material Condition to Support URO (Submarines Only)
AG Sample TYCOM Message to NAVSEA Concerning Fast Cruise and Critical Reactor Operations (Submarines Only)
AH Sample TYCOM Message to Ship Concerning Sea Trials Depth Authorization (Submarines Only)
AI Sample TYCOM Message to Ship Concerning URO (Submarines Only)
AJ Sample ISIC Message to TYCOM Concerning Material Certification Prior to Sea Trials (Submarines Only)
AK Sample ISIC Message to TYCOM Concerning Material Certification Upon Completion of Sea Trials (Submarines Only)
AL Sample Ship Message to TYCOM Concerning Readiness for Fast Cruise (Submarines Only)
AM Sample Ship Message to TYCOM Concerning Readiness for Sea Trials (Submarines Only)
AN Sample TYCOM Message Concerning Resumption of Sea Trials Completion Prerequisites for Industrial Activity Availabilities Greater Than Six Months Duration (Submarines Only)
AO Sample NAVSEA Message to TYCOM Concerning Ship SUBSAFE Material Condition and Depth Recommendation for Follow-On Sea Trials (Submarines Only)
AP Sample TYCOM Message to Ship Concerning Follow-On Sea Trials Depth Authorization (Submarines Only)
AQ Sample NAVSEA Message to TYCOM Concerning Material Certification and Recommendation for URO (Submarines Only)
AR Minimum Sea Trials Requirements for Industrial Activity Availabilities Greater Than Six Month Duration (Submarines Only)
AS Summary of Significant Post Repair Sea Trial Requirements (Submarines Only)

3.1 PURPOSE. This chapter provides guidance for the implementation of policies set forth in references (a) through (ak).

3.2 CHIEF OF NAVAL OPERATIONS SCHEDULED MAINTENANCE AVAILABILITIES.

a. Chief of Naval Operations (CNO) scheduled maintenance availabilities greater than six months in duration are:

(1) Overhaul. An availability scheduled for accomplishment of industrial maintenance and modernization. Types of availabilities include:

(a) Regular Overhaul.

(b) Complex Overhaul.

(c) Engineered Overhaul.

(d) Refueling Overhaul.

(e) Refueling Complex Overhaul.

(f) Engineered Refueling Overhaul.

(2) Other availabilities. An availability scheduled primarily for industrial maintenance and installation of major, high priority alterations. Types of these availabilities include:

(a) Depot Modernization Period.

(b) Planned Incremental Availability.

(c) Docking Planned Incremental Availability.

b. CNO scheduled maintenance availabilities less than six months in duration. Short, labor intensive availabilities scheduled for accomplishment of industrial maintenance and modernization. Types of these availabilities include:

(1) Selected Restricted Availability (SRA).

(2) Docking SRA.

(3) Phased Maintenance Availability (PMA).

(4) Docking Phased Maintenance Availability.

(5) Service Craft Overhaul.

(6) Extended SRA.

(7) Extended Docking SRA.

(8) Incremental SRA.

3.3 MAINTENANCE POLICIES AND PROCEDURES.

3.3.1 Critical Path Jobs. Critical Path Jobs (CPJ) are those jobs or series of jobs that require special management attention and normally present the greatest risk to on time completion of the Key Event or availability. Industrial activities should be judicious in designating jobs as CPJs to prevent diverting management attention from those jobs which are, in fact, critical to on time completion of the availability. Consideration shall be given to, but not limited to, the following in determining the CPJs:

a. Little or no room for delay exists.

b. Establishing plant conditions.

c. Long Lead Time Material (LLTM).

d. Complexity of job or special skills or resources required.

e. Significant test requirements.

f. Not previously accomplished by a Fleet Maintenance Activity (FMA) (alterations, etc.).

3.3.2 Work Sequence Schedule. The Work Sequence Schedule is an integrated timeline (Pert Chart, Gantt Chart, etc.) that includes plant conditions, major work steps, tests and recertifications used to identify and progress CPJs. The Work Sequence Schedule should include:

a. Staging.

b. Establishing plant conditions.

c. Issuing work procedures.

d. Identifying major production steps.

e. Testing/Recertifying.

f. Closing out work procedures.

3.3.3 Milestones. Appendices A, B and C of this chapter are representative of Typical CNO Maintenance Availability milestones for ships.

a. Appendix A of this chapter is applicable to submarines only. Naval Sea Systems Command (NAVSEA) will issue specific advance planning milestones for each CNO Maintenance Availability.

b. Appendix B of this chapter is applicable to the surface force only. It is provided as a guide to aid the Commanding Officer (CO) in planning and executing the availability. Specific advance planning milestones are developed jointly by the ship, the Type Commander (TYCOM), and the planning and executing activities (if possible). A particular availability may require development of a complete off-load/storage/security plan or a tailored list of Inactive Equipment Maintenance (IEM) items, or may require office/training/flammable storage space, etc. These items should be added to the milestones through coordination with the responsible planning and engineering activity.

c. Appendix C of this chapter is applicable to aircraft carriers only. For specific availabilities, a listing of milestones is included as an enclosure to Supervisor of Shipbuilding Newport News (SUPSHIP NN), Code 1800 (Nuclear Powered Aircraft Carriers only) or TYCOM (other Aircraft Carriers), as applicable, Maintenance Planning Tasking letter. Subsequent to this, the TYCOM sends out periodic revisions until availability completion. Various activities which have specific responsibilities for the maintenance of aircraft carriers, composite listings of milestones for the TYCOM, NAVSEA, SUPSHIP NN, Code 1800, planning yard and the CO of the ship, imposed by the TYCOM and higher authority are found in reference (a). The milestones are arranged in order of occurrence through the planning, execution, and post-repair phases of CNO Maintenance Availabilities.

3.3.4 Machinery Space Turnover. Machinery Space Turnover will be 14 calendar days for availabilities in excess of 120 days, and between 3 - 14 days for availabilities 120 days or less, based on scope of work, length of availability and other pertinent factors. Machinery Space Turnover will, in no case, be less than 3 working days regardless of whether a Light Off Assessment (LOA) is scheduled and its length will be decided by the Work Definition Conference (WDC). Generally, LOAs will be scheduled for availabilities greater than 120 days. For availabilities less than 120 days, the requirement for a LOA is determined by the TYCOM. Machinery Space Turnover for conventionally powered aircraft carriers will occur at least 8 days prior to a LOA scheduled for an availability containing a cold iron period between 60 and 120 days. The following list of prerequisites apply:

a. Temporary services removed, except for those required by Ship's Force or late emergency industrial activity work required for LOA.

b. Access openings and ladders installed and clear for passage.

c. All damage control/firefighting systems operational.

d. Major lagging repairs completed. Some minor lagging repairs may remain.

e. All machinery in-place and assembled with cold checks completed satisfactorily in accordance with current instructions.

f. Missing deck plates and supports installed.

g. Boiler work completed including hydrostatic testing, with boiler under appropriate lay-up.

h. Loose industrial material and debris removed.

i. All main propulsion piping, valves, and systems intact, hydrostatic tightness tests completed satisfactorily and remote valve operator and associated/indicator tests completed satisfactorily.

3.3.5 Memorandum of Agreement. A Memorandum of Agreement (MOA) shall be executed and jointly signed by the ship's CO, the Supervising Authority, the Immediate Superior in Command (ISIC) representative (if applicable) and the FMA representative (if applicable) prior to arrival. It is an agreement between the industrial activity and Ship's Force concerning the responsibilities of each party during the availability. It deals with a number of areas in which Ship's Force generally provides support to the industrial activity and vice versa. Reference**s (aj) and (al)** contain **training requirements and** additional guidance for MOAs involving nuclear powered surface ships. **Reference (w) provides a sample training MOA for submarines.** As a minimum the MOA shall include:

a. Purpose

b. Applicability

c. Responsibilities for control of plant conditions and work area isolation.

d. Responsibilities for accomplishment of work.

e. Responsibilities for Quality Assurance (QA).

f. Responsibilities for support services/equipment.

g. Responsibilities for testing requirements.

h. Responsibilities for waivers, deviations, or Departure from Specifications.

i. Responsibilities for training.

j. Miscellaneous responsibilities (as required) (i.e., Radiological Control, Hazardous Material, etc.).

k. Signatures of all activities (signifying agreement with the terms and responsibilities of the MOA).

3.3.6 Responsibilities. Responsibilities for the Maintenance Policies and Procedures for CNO scheduled availabilities are as follows:

3.3.6.1 Fleet Commander In Chief.

a. Maintain the Availability Intervals and Cycles issued in reference (c) to the maximum extent practical within operational requirements.

b. Inform the Chief of Naval Personnel of any significant changes which would affect ship manning requirements during an extended CNO Maintenance Availability.

c. Coordinate with the Program Executive Office, Direct Reporting Program Manager or Ship Program Manager, as applicable, in the accomplishment of CNO Maintenance Availability planning.

d. Implement Docking Officer Qualification and Certification requirements as issued in NAVSEA instructions.

e. Plan for and monitor availability execution to achieve a balance of cost and schedule for the scope of work authorized. Ensure that any growth in the scope of work authorized is necessary to reasonably assure safe, reliable operation of the ship during the subsequent operating cycle.

f. Plan for and provide berthing, messing, offices, classrooms, equipment stowage space, and Ship's Force repair shop in accordance with reference (d) when shipboard facilities are expected to become unusable or uninhabitable.

3.3.6.2 Type Commander.

a. Coordinate the scheduling of availabilities at industrial activities with Fleet Commander In Chief (FLTCINC), NAVSEA and CNO.

b. Initiate the required budgetary actions for funding availabilities.

c. Coordinate the work assignments between the FMA and the industrial activity.

d. Seek resolution of all class and major technical problems and coordinate industrial requirements for modernization and repair.

e. Authorize AWPs prepared by Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only)/applicable TYCOM (other Surface Ships) with recommendations from the ship's CO, Maintenance Manager (MM) and ISIC (if applicable). Exercise all work candidate screening and follow up actions relating to the availability directly with the ship concerned.

f. (Submarines Only). Coordinate the interface of the Maintenance and Material Management (3-M) system with the Periodic Maintenance Requirement (PMR) scheduling and feedback reporting system.

g. Designate a TYCOM representative for the WDC and Pre-Arrival Conference (PAC) when such conferences are scheduled.

h. Recommend to CNO any high priority fleet modernization desired to be accomplished.

i. (Submarines Only). Send a Sea Trials Support Services message, if required, to specify Deep Submergence Rescue System (DSRS) "modified-alert" requirements (see Appendices D or E of this chapter).

j. (Submarines Only). For minor CNO Maintenance Availabilities send a Waiver of Escort Requirements Message to NAVSEA when requested by the ISIC in accordance with paragraph 3.6.8.3.9(4) of this chapter.

k. Conduct a QA audit of Ship's Force and FMA Controlled Work Packages in accordance with Volume V, Part I, Chapter 9 of this manual.

l. (Submarines Only). For major CNO Maintenance Availabilities issue the required messages for Fast Cruise, Sea Trials and Unrestricted Operations (URO) Certification in accordance with paragraph 3.6.8.4 of this chapter.

m. (Submarines **Only) For CNO scheduled** availabilities **of less than six months in duration issue the required message for Sea Trials in accordance with** paragraph **3.6.8.3 of this chapter.**

3.3.6.3 Type Commander/Immediate Superior in Command (Group or Squadron).

a. All Ships.

(1) Assist the TYCOM and SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only) in the preparation of the AWP.

(2) Monitor corrective maintenance action taken by industrial activities and Regional Support Groups.

(3) Schedule and conduct inspections of Forces Afloat.

(4) Monitor progress of CNO Maintenance Availabilities.

(5) Ensure that a MOA is executed prior to availability start in accordance with paragraph 3.3.5 of this chapter.

b. Submarines Only.

(1) Ensure timely accomplishment and reporting of PMR maintenance actions on assigned ships. This should include the use of the PMR scheduling system and the SUBMEPP scheduling tape for automatic interface between the Master Job Catalog, the Current Ship's Maintenance Project (CSMP), and the Automated Material Requisitioning system.

(2) Ensure industrial activities and ships maintain current copies of Maintenance Standards, PMR schedules and PMR inventories.

(3) Review Ship's Force submitted deferrals for industrial activity assistance to determine if restoration in accordance with Maintenance Standard criteria is warranted in lieu of, or in addition to, requested industrial activity corrective maintenance.

(4) Ensure industrial activities provide the 3-M and Maintenance Standards feedback necessary for analysis by SUBMEPP.

(5) Request assistance from SUBMEPP as necessary in resolving problems with PMR scheduling and software.

(6) Report to SUBMEPP the inability to perform PMRs due to software technical inadequacy, non-availability of overhauling spares, insufficient manpower or inadequate industrial activity facilities.

(7) Designate an Availability Coordinator to coordinate industrial activity, FMA drydock and Ship's Force work to meet the availability completion date.

(8) Provide updated Sea Trials status by telephone to Commander, Submarine Development Squadron (COMSUBDEVRON) FIVE if DSRS "modified-alert" support services are in use.

(9) For minor CNO Maintenance Availabilities issue the required messages for Sea Trials escort requirements/waiver of escort requirements as applicable, Fast Cruise, Sea Trials and URO Certification in accordance with paragraph 3.6.8.3 of this chapter.

3.3.6.4 Submarine Maintenance Engineering, Planning and Procurement Activity/Planning Engineering Repairs and Alterations.

a. Develop plans for accomplishing periodic maintenance or equipment replacement.

b. Maintain Baseline AWPs configured to each ship class and type availability and include the standard 3-M data elements controlled by the TYCOM.

c. Prepare and issue all phases of AWPs and AWP Supplements (if applicable).

d. Maintain custody of shore based spares under the direction of NAVSEA and the TYCOM.

e. (Submarines Only). Prepare, issue and maintain PMR computerized inventories and scheduling reports and associated Master Job Catalog/PMR computer tapes.

f. (Submarines Only). Prepare, issue and maintain Maintenance Standards under the guidance of NAVSEA and the TYCOM.

3.3.6.5 Ship's Commanding Officer. The CO is the TYCOM representative for monitoring the progress and quality of industrial work. As such he should review availability progress during weekly conferences with Department Heads and others as necessary. The Supervising Authority meets weekly with the CO and other industrial activity officials as described in paragraph 3.6.3.1 of this chapter. The CO should be prepared to discuss and assist in the resolution of scheduling, design, material, and production problems. The CO's responsibilities are defined in reference (e). Additionally, COs shall:

a. All Ships.

(1) Review AWPs and provide comments to the TYCOM, ISIC and SUBMEPP/SUPSHIP NN, Code 1800 during the WDC.

(2) Assign a Ship Selected Records (SSR) Coordinator to perform the functions of paragraph 3.6.6.b. of this chapter.

(3) Publish policy concerning the number of duty sections, liberty, ship cleanliness, tagout procedures, tank closeout and blanking of otherwise exposed fluid systems, waveguides and air systems before availability start.

b. Submarines Only.

(1) Review the status of PMR maintenance schedules and CSMP reports with parent ISIC prior to CNO Maintenance Availabilities in order to assist in planning for accomplishment of the required planned maintenance and corrective maintenance. Additional information and requirements concerning PMR are discussed in detail in Volume IV, Part III, Chapter 7.

(2) Maintain a current SUBMEPP PMR inventory of maintenance requirements and Maintenance Standards applicable to the ship class.

3.4 AVAILABILITY WORK PACKAGE PLANNING.

3.4.1 Forces Afloat Planning Sources. The majority of the Forces Afloat Work Package can be identified in advance from the following sources:

a. Ship's CSMP Integrated with the Life Cycle Maintenance Plan. This document contains work items deferred during the previous maintenance availabilities, outstanding Departures from Specifications, dry dock requirements, etc. To ensure the CSMP accurately reflects the required ships maintenance, the ISIC Material Officer/TYCOM will review each ship's CSMP in detail with the ship prior to the WDC for CNO Maintenance Availabilities. The ISIC/TYCOM 3-M Coordinator and Maintenance Document Control Office (MDCO) should provide the necessary technical assistance and training to facilitate CSMP updates.

(1) (Submarines Only). PMR/URO. The ISIC will load scheduled PMRs into each ship's CSMP for a specific availability.

(2) Alterations. The ISIC MDCO/TYCOM will enter alterations on the ship's CSMP which the TYCOM has authorized for accomplishment. The ISIC/TYCOM calls out alterations for a specific availability based on material availability as identified by the industrial activity. Within funding constraints and TYCOM guidance, all alterations authorized on the TYCOM Alteration Management System/Fleet Modernization Program are candidates for accomplishment during each availability.

(3) Condition Based Maintenance. (Machinery Condition Analysis/Technical Assessment, Repair, Groom and Evaluation Team/Performance Monitoring Team (PMT), Combat System Readiness Review, etc.). The ISIC/TYCOM Material Officer and Ship's Force shall ensure that all material deficiencies identified by Condition Based Maintenance programs as identified in Volume II, Chapter 2, section 2.4 of this manual are loaded into the CSMP for a specific availability.

b. Work Routines. A set of Master Job Catalog standard work routines should be developed for every availability. The MDCO/TYCOM tailors each work routine package to the needs of the ship by calling out additional work routines to document periodic, interim drydocking, URO maintenance and calibration recall requirements, as applicable.

c. Pre-Availability Tests and Inspections. Ship's Force, PMTs and industrial activity inspectors perform and submit the results of these pre-availability tests and inspections to the industrial activity/SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers/applicable TYCOM (other Surface Ships only) for evaluation and inclusion in the AWP, as applicable. PMS 390 provides results and recommendations for pre-availability tests performed by PMTs and Ship's Force.

d. Additional requirements for nuclear powered ships are contained in reference (b).

3.4.2 Forces Afloat Planning Actions. Ship's Force shall take the following maintenance availability planning actions, as applicable:

3.4.2.1 Forces Afloat Work Package Preparations.

a. Develop a Ship's Force concurrent Work Package that includes all major maintenance actions such as Planned Maintenance System (PMS), Reactor Plant PMS, repairs, PMRs, alterations, and testing to be conducted by Ship's Force during the availability, as applicable.

b. Identify CPJs in accordance with paragraph 3.3.1 of this chapter, and submit to the planning/industrial activity for integration into the availability schedule.

c. Establish a strategy for calibration of gages, instruments, and tools based on the Calibration Recall List.

d. Identify all industrial activity provided production and testing support equipment needed to accomplish Ship's Force work, or to recertify systems following Ship's Force work. Identify this equipment to the industrial activity prior to the start of the availability. This support equipment includes the following, as applicable:

(1) Reactor Plant PMS support equipment.

(2) System hydrostatic test equipment.

(3) Calibration equipment.

(4) Special tools.

e. Ship's Force should use Appendices A, B or C of this chapter as guidance to prepare for availabilities, as applicable. These appendices provide Typical CNO Maintenance Availability Planning Milestones for submarines, surface ships and aircraft carriers respectively.

3.4.3 Availability Work Packages.

3.4.3.1 Availability Work Package Content. The AWP includes all nuclear and non-nuclear authorized industrial work and associated Forces Afloat work for modernization, maintenance and repair during the availability. The work described is developed from NAVSEA and TYCOM instructions.

3.4.3.2 Availability Work Package Sources.

a. Class Maintenance Plan (CMP) (includes Integrated Maintenance Plan).

b. NAVSEA authorized alterations.

c. TYCOM authorized alterations, repairs, PMRs, Engineering for Reduced Maintenance Costs items and baseline AWPs.

d. Results of pre-availability tests and inspections.

e. CSMP.

3.4.3.3 Availability Work Package Development. The five stages of AWP development include Baseline, Preliminary, Proposed, Approved, and Completed.

a. SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only)/applicable TYCOM (other Surface Ships only) develop and maintain Baseline AWPs for each ship class and type of availability.

b. SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only)/applicable TYCOM (other Surface Ships only) consolidate the Baseline AWP, NAVSEA authorized alterations and TYCOM authorized alterations, repairs, PMRs and Engineering for Reduced Maintenance Costs items to produce the Preliminary AWP. This Preliminary AWP is issued approximately 12 to 14 months prior to the start of the availability.

c. Systems Command (SYSCOM), TYCOM, and the ship's CO should review the Preliminary AWP to ensure that it includes known work candidates and authorized alterations that will not be accomplished prior to availability start and for proposed work candidates, which in their opinion, are unnecessary. Appendix F of this chapter provides suggested guidelines for review of the AWP. Following the initial review of the Preliminary AWP, Ship's Force shall host a meeting with the TYCOM and SUBMEPP/ SUPSHIP NN, Code 1800, as applicable to consolidate comments and recommendations for the WDC. This meeting is normally held early in the same week as the WDC.

d. SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only)/TYCOM (other Surface Ships only) will host a WDC attended by NAVSEA, the Supervising Authority, FMA (if applicable), TYCOM, ISIC, PMT (Submarines Only), Strategic Systems Project Officer (SSBN 726 Class submarines only) and Ship's Force when practical. During this meeting the Preliminary AWP is carefully reviewed and the SYSCOM and the TYCOM authorize the work. When actions are required before a decision is made, those actions are identified and subsequently monitored. The goal is to issue the Proposed AWP (one which represents all SYSCOM/TYCOM authorized work integrated and specifically tailored to the ship involved) within two months following this meeting. At this meeting, the SYSCOM/TYCOM authorizes the industrial activity to continue with planning on the basis of the work identified in the AWP. During this meeting any activity may submit new work candidates for consideration by the SYSCOM/TYCOM. The SYSCOM/TYCOM will authorize or reject each new work candidate submitted.

e. SYSCOM/TYCOM and the ship's CO should review the Proposed AWP to ensure that it contains all agreements made at the WDC. Appendix F of this chapter also provides suggested guidelines for review of this AWP.

f. The Supervising Authority will host a PAC attended by NAVSEA, FMA (if applicable), TYCOM, ISIC, SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only), and Ship's Force when practical. During this meeting the Proposed AWP, with results of the pre-availability tests and inspections incorporated where possible, will be carefully reviewed and the SYSCOM/TYCOM will approve the work. The goal is to issue the Approved AWP at the conclusion of this meeting. During this meeting any activity may submit new work candidates for consideration by the SYSCOM/TYCOM. The SYSCOM/TYCOM will authorize or reject each new work candidate submitted.

g. Within six months after the completion of the availability, SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only)/applicable TYCOM (other Surface Ships only) will issue the Completed AWP.

3.5 AVAILABILITY PLANNING.

3.5.1 Ship's Force Pre-Planning.

a. To effectively complete the Ship's Force responsibilities during the months preceding the start of the availability, it is necessary to assign an Officer/Chief Petty Officer as the Availability Coordinator, responsible for coordinating the completion of the milestones. The quality of the availability will be reflected in the preparations done by Ship's Force.

b. Prior to commencement of the availability, the industrial activity will request the ship to provide personnel Temporary Assigned Duty to the activity (approximately one month prior to the start date). The industrial activity will identify the personnel requirements of this pre-arrival team based on the type of availability and ship class.

NOTE: THE SUCCESS OF THE AVAILABILITY IS DIRECTLY RELATED TO THE QUALITY AND EXPERIENCE LEVEL OF THE TEAM MEMBERS ASSIGNED.

3.5.1.1 Industrial Activity Visit. The ship's CO, Executive Officer and department heads will visit the industrial activity as soon as practical prior to the start of the availability. The CO shall meet key industrial activity managers involved in the availability, other COs of ships in availabilities at the same industrial activity and if applicable, the local Naval Reactors Representative. The Executive Officer and department heads shall meet their counterparts within the industrial activity Project Team and counterparts assigned to other ships in an availability at the same industrial activity. The Executive Officer shall also check available crew quarters and barge accommodations, if applicable. Ship's Force shall:

a. Coordinate with the industrial activity to conduct pre-availability training and indoctrination. The following are suggested topics for training:

(1) Industrial activity organization and Ship's Force interface.

(2) Industrial activity procedures and practices, including:

(a) Operational Control Transfer.

(b) Tagout/Rip-Out/Work Permit.

(c) Submarine Safety (SUBSAFE) Re-Entry Control Procedures.

(d) Deficiency Reporting and Correcting.

(e) Radiological Controls Agreement.

(f) General Testing Requirements.

(g) Defueling/Fueling Requirements (Nuclear Reactor and Fossil Fuel).

(h) Industrial Activity Procedures for Accomplishing PMS of Equipment Under Their Cognizance.

(i) Nuclear Reactor/Radiological Accident Plan.

(j) Maintenance of Ship's Cleanliness.

(k) QA Interface with the Industrial Activity.

(3) General schedule of Key Events and phases of work and testing.

(4) Safety requirements including Ship's Force industrial activity responsibilities for:

(a) Dry Dock Safety.

(b) Fire Watches.

(c) Watertight Integrity.

(d) Reactor Plant Safety.

(e) Personal Protective Equipment.

(5) Relationship with industrial activity management including responsibility regarding weekly management meetings.

(6) Functions and responsibilities of the joint test groups (Nuclear/Hull, Mechanical and Electrical/Combat Systems) and the Ship's Safety Council including the designation of Ship's Force group and council members.

(7) Control mechanism for work and tests affecting ship's conditions.

(8) Special evolutions and procedures to be conducted early in the availability such as dry docking and establishing plant conditions.

(9) QA.

(10) IEM.

(11) Hazardous Material Requirements.

(12) Special Environmental Requirements.

(13) Support of Trials and Inspections.

(14) System Experts.

(15) Space Turnover.

b. Develop training plan and watchstation requalification program in accordance with TYCOM directives.

c. Develop Plan of Action and Milestones for Ship's Force responsibilities during the availability.

d. Review and prepare SSRs for turnover to the planning yard/industrial activity at the start of the availability (see paragraph 3.6.6 of this chapter).

e. Support the industrial activity's pre-availability shipchecks, tests and inspections.

3.5.2 Docking Conference. For availabilities involving a ship's dry docking, the industrial activity will conduct a Docking Conference prior to the ship entering the activity if scheduled to go directly into dry dock.

3.5.3 Ship's Force Administrative Preparations. Ship's Force administrative preparations for availabilities will include:

a. Necessary revisions to ship and department organization manuals to ensure compliance with established requirements.

b. Preparation of necessary ship and department directives to ensure that administration is formally supported in accordance with current requirements.

c. Formulation of procedures for qualification of underway/steaming watchstanders and maintenance of proficiency of inport watchstanders, including:

(1) Implementation of formal provisional qualification procedures.

(2) Establishment of qualification goals for Key Events, such as undocking, operational testing of ship and propulsion plant systems, steam testing, initial criticality, space turnover, etc.

(3) Incorporation of qualification requirements necessitated by alterations to ship or propulsion plant systems.

d. Procedures for maintenance and security of Ship's Force barge or office spaces.

e. General overhaul plan for Ship's Force responsible actions including provisions for:

(1) Ship off-load.

(2) Establishment of barge, berthing and messing facilities.

(3) Establishment of routine ship and barge watch bills.

(4) Scheduling of required shore based schools and leave for personnel.

(5) Provision for accomplishment of known Ship's Force corrective maintenance.

(6) Establishment of Ship's Force PMS routines.

(7) Establishment of Integrated Logistics Overhaul (ILO) procedures.

(8) Provisions for shift work during known periods of intensive testing (e.g., Engine Room Steaming Operations, Hot Operations, Power Range Testing).

(9) Ship load-out.

(10) Target dates for completion of key ship and department directives and procedures.

f. Assignment of ship system experts, or QA Inspectors, capable of monitoring industrial activity work on assigned systems.

3.6 AVAILABILITY EXECUTION.

3.6.1 Responsibilities. Responsibilities for CNO scheduled Maintenance Availabilities are as follows:

3.6.1.1 Fleet Commander In Chief.

a. Monitor availability execution to achieve a balance of cost and schedule for the scope of work authorized. Ensure that any growth in the scope of work authorized is necessary to ensure safe, reliable operation of the ship during the subsequent operating cycle.

b. Ensure that testing of all systems and equipment installed or repaired during the availability, which require at sea testing, is conducted prior to availability completion.

c. Provide berthing, messing, offices, classrooms, equipment stowage space, and Ship's Force repair shops in accordance with reference (d), when shipboard facilities are unusable or uninhabitable.

3.6.1.2 Type Commander/Immediate Superior In Command (Group or Squadron).

a. Authorize new items and growth industrial work items.

b. Monitor and approve all changes in established milestones, not internal to industrial activity, including LOA and completion dates.

c. Issue direction when the quality or completeness of industrial activity work is in question.

d. Monitor off-ship crew messing and berthing arrangements when required.

e. Notify the TYCOM when essential Ship's Force work cannot be completed on the scheduled contract or Key Event completion date. Make recommendations for assistance where appropriate.

f. (Surface Ships Only). Periodically assess and monitor shipboard conditions using Appendix G of this chapter for guidance.

g. (Submarines Only). Periodically assess and monitor shipboard conditions in accordance with paragraph 3.6.8.4.4 of this chapter.

h. Monitor Ship's Force preparation for LOA (if applicable).

i. (Nuclear Powered Ships Only). Conduct a Pre-Critical Inspection of the Engineering Department to determine the ship's readiness for either the Reactor Safeguards Examination (RSE) or the FLTCINC Post-Overhaul Reactor Safeguards Examination (PORSE) as applicable.

j. (Submarines Only). Schedule a salvage inspection by Forces Afloat in time to have discrepancies corrected prior to the start of Fast Cruise. Normally, the salvage inspection should be completed not less than one week prior to the scheduled start of the Fast Cruise.

k. Conduct formal Phase I crew certification inspection(s) of the Ship's Force in accordance with the TYCOM Training Manual (when required). The purpose of this inspection shall be to audit the readiness and training of the Ship's Force, particularly in the areas of watchstander qualifications, damage control readiness, status of operational and emergency bills, presence on board of essential technical manuals, and general operational knowledge. This inspection shall be scheduled about one month prior to Fast Cruise and should include written examinations and personal interviews with officers and key enlisted personnel to determine their readiness and status of training as outlined for Phase I. A comparison of personnel allowance (including Navy Enlisted Classification requirements) versus onboard count shall be made to ensure that the ship is adequately manned.

l. (Submarines Only). Prior to Fast Cruise, the ISIC QA Officer shall conduct a formal audit of Ship's Force Re-Entry Control and Departure from Specification Records. Using the SUBMEPP PMR and URO Maintenance Requirement Card (MRC) scheduling reports and current industrial activity/Ship's Force updates to the latest report, ensure all required **"D"-Level** PMR and URO MRC accomplishment is current. The ISIC shall forward the audit results to the TYCOM via the cognizant Commander, Submarine Group. The ISIC will then report to the TYCOM by message in accordance with message sample format of Appendix H of this chapter the status of the crew/material certification. An update of this certification is needed prior to Sea Trial and following the rescinding of certification noted in paragraph 3.6.8.4.1.c. of this chapter.

m. Conduct Phase II crew certification. Witness and certify to the TYCOM that the state of crew training is satisfactory for at sea operations in accordance with the TYCOM Training Manual. This will be done during a two day period subsequent to Dock Trials and Phase II crew certification, and prior to Fast Cruise. This two day period shall be scheduled so that there is normally a 48 hour period between the end of this event and the beginning of Fast Cruise. This two day Phase II crew certification period is divided into a 40 hour crew work-up and rest period and an eight hour modified dockside Operational Readiness Inspection. The entire period should be scheduled to minimize interference with industrial activity work. However, since the certification must be conducted carefully to be meaningful, the officer scheduling the certification should coordinate industrial activity interference during the eight hour modified Operational Readiness Inspection. This certification should be thorough and meticulous. Pressure from the industrial activity or any other source to compromise ship safety must not be permitted to influence the judgment of the certifying officers. The desired overall sequence of these events is shown in Volume I, Chapter 2, Appendix B of this manual.

n. Conduct a material inspection of the ship.

o. Satisfactory completion of the inspections of paragraphs 3.6.1.2.k. through 3.6.1.2.m. of this chapter should be reported to the TYCOM in one "PRIORITY" crew certification message in accordance with sample message format of Volume I, Chapter 2, Appendix M of this manual paralleled by a telephone call to the TYCOM Watch Officer reporting the date-time group of the message. If significant deficiencies exist or it appears that an extension of time is required to correct training/material deficiencies, the TYCOM shall be immediately advised by telephone and by message. The Supervising Authority will be included as an information addressee.

p. Receive from the ship's CO/Supervising Authority the scope, schedule and agenda of tests for Sea Trials for review and approval. When approved, forward copies of the agenda to the TYCOM. The concurrence of NAVSEA is required for the sequencing and scheduling of nuclear propulsion plant Sea Trials for CNO Maintenance Availabilities.

q. (Submarines only) Prior to Sea Trials, report material certification of the ship by message in accordance with message sample format, Volume I, Chapter 2, Appendix R of this manual, to the TYCOM.

r. Monitor the progress of the availability.

s. (Submarines Only) If required, initiate Operating Cycle Extension Assessment in accordance with references (f) and (g).

3.6.1.3 Fleet Maintenance Activity. A scheduled CNO Maintenance availability may involve a concurrent FMA availability or similar FMA repairs. During such availabilities, it is imperative that the industrial activity and the FMA involved maintain a close working relationship, both between themselves and Ship's Force, to ensure a successful, on-time availability completion. As a minimum, the FMA must:

a. Carry out all FMA work consistent with the procedures described in Volume II, Chapter 4 of this manual.

b. Participate in all Weekly Management Meetings. (See paragraph 3.6.3.1 of this chapter).

c. Provide information on FMA Job Status for ship's Weekly Situation Report (SITREP). (See Appendix I of this chapter).

d. Closely coordinate all jobs affecting Key Event/Milestone completion dates with the industrial activity and Ship's Force.

e. Assist the industrial activity and Ship's Force by maintaining good housekeeping on all job sites.

3.6.1.4 Ship's Force.

a. Support work permit, tagout and Re-Entry programs.

b. (Submarines Only). Ensure no work is conducted within the certified SUBSAFE boundaries without proper authorization.

c. Monitor the quality of the industrial activity's performance.

d. Support industrial activity test programs and witness equipment testing.

e. Perform IEM.

f. Ensure Ship's Force work is integrated into the industrial activities schedule.

NOTE: FLEET POLICY DOES NOT PROHIBIT SHIP'S FORCE FROM ACCOMPLISHING WORK ON EQUIPMENT, COMPONENTS OR SYSTEMS NOT OTHERWISE ASSIGNED TO THE INDUSTRIAL ACTIVITY AS LONG AS SUCH WORK DOES NOT IMPEDE THE INDUSTRIAL ACTIVITY SCHEDULE OR IMPACT PRIMARY SHIP'S FORCE RESPONSIBILITIES. THE MAJORITY OF PERSONNEL LEAVE, PARTICULARLY FOR THE WEAPONS AND ENGINEERING DEPARTMENTS, SHOULD BE PROGRAMMED EARLY IN THE AVAILABILITY SO THAT NECESSARY PERSONNEL WILL BE AVAILABLE FOR SUCH THINGS AS COMBAT SYSTEM TESTING, HOT OPERATIONS, ENGINE ROOM STEAMING, POWER RANGE TESTING AND FAST CRUISE.

g. Train and qualify personnel to support the Key Event schedule.

h. Perform site visits where contractor services are being used for equipment refurbishment.

i. Ensure LOA preparations are progressing on schedule.

j. Attend weekly progress meetings.

k. Ensure that equipment returned to the ship has passed required shop tests.

l. (Surface Ships Only). For dry docking availabilities:

(1) Make sure that bilges are properly preserved. To avoid moisture from condensation, plan to complete bilge painting before the ship undocks.

(2) Make sure that air testing scheduled for tanks below the water line is completed before the ship undocks.

(3) Make sure that all hull valves are reinstalled and tested before the ship undocks.

(4) Make sure that underwater preservation is completed, that water line boot is painted evenly and draft marks restored before the ship undocks.

m. Arrange for a post repair boiler inspection by Naval Surface Warfare Center Carderock Division (NSWCCD), and ISIC representatives. Detailed information concerning this inspection can be found in Volume IV, Part I, Chapter 5.

n. Schedule Combat Systems Mobile Training Team visit with the ISIC.

o. Develop a Plan of Action and Milestones for LOA.

3.6.2 Arrival Conference.

3.6.2.1 Scheduling and Conducting. The arrival conference is scheduled shortly after the start of an availability and conducted by the industrial activity and attended by the CO, Executive Officer, heads of department and their principal assistants, key shipboard personnel and a TYCOM representative. This meeting also provides an excellent opportunity for Ship's Force to meet key industrial activity personnel.

a. The conference agenda should include, as a minimum, the following topics:

(1) Resolve problems not completed at the WDC/PAC.

(2) A discussion of work scheduling and production planning requiring close cooperation between Ship's Force and industrial activity personnel. Changes to dates for Key Events such as dry docking, Dock Trials, Fast Cruise, and Sea Trials shall be made known and agreed upon at this time.

(3) Dissemination of planning information, such as job orders that have resulted from the deferral actions approved for industrial activity accomplishment.

(4) Resolution of any problems regarding work to be undertaken or material or scheduling problems.

(5) Reporting of plans and material status on Key Events or CPJs.

(6) Discussion of industrial activity regulations and other pertinent requirements affecting the ship.

(7) Dissemination of general administrative information of interest to Ship's Force, such as industrial activity and local facilities for training, recreation, housing accommodation, parking, etc.

b. Activities may submit new work items for consideration.

c. Industrial activity schedule daily/weekly meetings.

d. Submit an Availability Start Message to cognizant FLTCINC at the start of an industrial availability.

3.6.3 Routine Meetings and Conferences.

3.6.3.1 Weekly Management Meetings. Senior industrial activity management officials should meet weekly with the CO of the ship during the availability.

a. Purpose. These meetings provide a formal means by which attendees can address important specific issues with the senior industrial activity official to obtain appropriate resolution. Questions not answered relative to the conduct of this meeting should be addressed by the CO through the ISIC (if applicable) to the TYCOM.

b. Execution.

(1) The industrial activity Senior Officer/Manager will designate the time and day of the week for the meeting.

(2) Attendees will submit agenda items normally within 24 hours before the meeting. The industrial activity will collect, collate, and prepare all agenda items in writing and distribute them to attendees at the meeting.

(3) Attendees will discuss agenda items at the meeting.

c. Attendees. The industrial activity chairs the meeting. The following personnel shall attend and participate:

(1) The CO of the ship being repaired. The Executive Officer should attend if the CO cannot be personally present for any meeting.

(2) At some industrial activities, the TYCOM may designate a representative to attend. If so, he may submit agenda items in addition to those submitted by CO's that may be broadly applicable to all ship's in specific availabilities. In the record, there shouldn't be any "TYCOM Position" on any items. The CO has the responsibility to deal with the senior industrial activity official on problems relating to his ship.

(3) The industrial activity Project Manager or equivalent.

(4) (Nuclear Powered Ships Only). The Naval Reactor Representative at industrial activities authorized to conduct naval nuclear work.

(5) Industrial Activity Senior Management (e.g., Engineering Department Head, QA Head, Production Officer).

(6) Any industrial activity personnel as required to support specific agenda items.

d. General Guidelines.

(1) Before submitting an agenda item, the ship CO should have made an attempt to resolve the problem at an appropriate level within the industrial activities organization.

(2) When agenda items are general subjects such as overall schedule adherence, overall industrial activity manning of ships, overall ship cleanliness, performance of workers and overall ship safety, sufficient factual data should be included to substantiate them.

(3) (Nuclear Powered Ships Only). Ship COs should not routinely submit their agenda items to the Naval Reactors Representative Office (NRRO) for review prior to giving them to the industrial activity's Senior Manager. This does not mean that specific questions related to agenda items cannot be discussed with the NRRO. They should be. Ship COs should not expect the NRRO to be a screen for checking the appropriateness of the item.

(4) Ship COs in private activities must be extremely careful in wording their agenda items, in the discussions at the meeting and in agreeing to words in the minutes to assure that they do not introduce or give tacit agreement to contractual matters.

(5) Ship COs should not submit items for the management meeting as a means to merely determine the status of a job.

(6) If required by the TYCOM, ship COs shall provide a copy of the minutes of each meeting to their ISIC/TYCOM.

e. The Weekly Management Meeting is used as a forum to produce a Progress Report, which is intended to form a brief word picture of the availability progress and identify problems that may require action/resolution. (Paragraphs 1 and 2 in Appendix I of this chapter should not exceed one typewritten page).

(1) If required by the TYCOM, COs will submit weekly Progress Reports by message of the overall status of work. As a minimum, quality of work, progress, significant problem areas, and action taken towards their resolution shall be addressed. In addition, if the availability completion or readiness-for-sea dates appear to be in jeopardy, the estimated period and reasons for delay will be reported and identified. The Progress Reports will be routed via the industrial activity and FMA (if applicable) for comments and transmitted in time to reach the TYCOM by the first work day of each week. Appendix I of this chapter is the desired format for the report.

(2) If, as a result of his inspections, the CO considers that the progress or the quality of work is unsatisfactory, he will promptly bring the matter to the attention of the industrial activity. If satisfactory corrective measures are not taken, he will report by letter, or if time is critical, by message, to the TYCOM with a copy to the industrial activity stating specifically in what respects the work is unsatisfactory. If the condition reported is not corrected to the CO's satisfaction, a report will be made to CNO via the TYCOM in accordance with reference (e). Copies of this report will be sent to the industrial activity and appropriate FLTCINC.

(3) During the course of the availability, periodic progress reviews are conducted at the 25/50/75 percent points of elapsed time of the availability. As a minimum, discussion should include the actions towards resolution of previously reported significant problem areas not yet resolved, upcoming Key Events that may be in jeopardy, any significant changes that may be required to meet availability milestones, status of new work and any other issues deemed necessary. The report of the periodic review will be annotated in the weekly SITREP.

3.6.3.2 Docking/Undocking Conferences. For availabilities involving a ship's dry docking, the industrial activity will conduct both a Docking and Undocking Conference, normally within one week prior to the expected evolution. These conferences will be conducted by the assigned industrial activity Docking Officer. Requirements for the conference agenda, attendees, and Ship's Force support are found in reference (h).

3.6.4 Assist Ship's Force Funds. The TYCOM may set aside a portion of the maintenance funds for CNO availabilities as an Assist Ship's Force (ASF) fund. This fund is controlled by the CO and is used to obtain minor industrial activity assistance in the nature of services and/or labor, to assist in completing assigned Ship's Force work. The following restrictions apply to the use of ASF funds:

a. No work in the nature of an alteration will be undertaken, unless authorized by the TYCOM.

b. No work using ASF funding will be undertaken in which Ship's Force is not the main participant.

c. Only incidental material will be purchased with ASF funds. Normally this will not exceed ten percent of the total job cost.

d. A detailed account of ASF expenditures will be maintained. This account may be audited periodically by the TYCOM to ensure compliance with the restrictions in paragraphs 3.6.4.a. through c of this chapter.

3.6.5 Integrated Logistics Overhaul.

a. The ILO concept was developed to provide improved maintenance support to the Fleet in response to the need for complete on board logistics support. An ILO focuses on both maintenance and supply requirements by ensuring that technical documentation and repair parts support the equipment which is actually on board. During an ILO, both maintenance and supply personnel are trained in the use and maintenance of shipboard logistics support documentation and systems to enable them to sustain the effects of the ILO during the operating cycle. The objective of an ILO is to improve readiness by providing a ship completing a specified availability with logistics support that accurately reflects the ship's configuration. A secondary objective is to train Ship's Force in the use of on board support documents and in recognizing and correcting support deficiencies.

b. An ILO is a process which improves ship's readiness and equipment availability through verification of configuration status accounting data, ordering of proper logistics support, and training of Ship's Force in the use and maintenance of its logistics support documentation. An ILO is comprised of five functional elements:

(1) Configuration Analysis and Coordinated Shipboard Allowance List (COSAL) QA. Consists of verification of start of availability configuration data (included planned changes) with Weapons System File data and other documentation to ensure that the Start of Overhaul COSAL fully supports the projected end of availability equipment configuration. In addition, changes in configuration reported by the accomplishing activity are verified to ensure final COSAL documents include required support.

(2) PMS Analysis. Includes verification of applicable Maintenance Index Pages (MIP) with ship's existing configuration and all changes to this configuration reported by the accomplishing activity. Resolution of discrepancies with PMS managers is accomplished as required. Analysis of individual MRCs is performed to ensure that required PMS repair parts and special tools are identified, included in the applicable documents, and ordered.

(3) Technical Manual Analysis. Ensures that the technical manuals required to support the end of availability configuration are identified and requisitioned. Technical manuals, both those offloaded and those received during the availability, are inventoried and reviewed for applicability, correct change level, and status of changes. Technical manuals applicable to final configuration are retained. Discrepancies are resolved with the Naval Sea Data Support Activity. Technical manuals missing from the required inventory are requisitioned as are any changes needed to upgrade manuals already held. The ship's Index of Technical Publications is updated to reflect the final configuration and is provided to the ship at the end of availability by the Naval Sea Data Support Activity. Also provided are the Technical Manual requisitions still outstanding. Finally, to ensure minimum deterioration of stock after the availability, selected ship personnel are trained in technical manual maintenance procedures.

(4) Repair Parts Analysis. Ensures the accuracy of the repair parts inventory to be back loaded to the ship at the conclusion of the availability. This analysis includes a complete inventory of all parts aboard and identification of any parts for which there is incomplete data. It also includes recomputation of allowances based on usage or new equipment installation, turn-in of parts no longer allowed and numerous location/quality checks prior to backloading.

(5) Training. Focuses on proper accomplishment of the first four functional elements of the ILO to ensure that correct logistics support is identified and delivered for shipboard equipment. Efforts are made to ensure that shipboard personnel are fully able to utilize and maintain the ship's logistics support and configuration documentation, both for ILO purposes and for ongoing operating cycle requirements. COSAL use and maintenance training provides shipboard personnel with a working knowledge of the COSAL, its relationship to other maintenance documents and the procedures to ensure that logistics support remains current, (e.g., use of OPNAV 4790/CK Forms).

c. The Ship's Force team will develop an offload schedule of all ship's spare parts. The ship's spare part stowage plan will be updated to reflect changes in the desired location of individual spare parts. Additionally, provisions must be made for the Aviation Consolidated Allowance List to support the embarking air wing.

d. A ship load-out schedule, including stores, repairs parts, yellow gear, and removal of industrial activity equipment, will be prepared by the ship with the assistance of the industrial activity.

e. During a CNO maintenance availability, the ship will ensure that new/removed equipment is reflected in the COSAL and that the required spare parts are added/subtracted as applicable. Allowance changes are to be requested in accordance with reference (i).

f. Spare parts, test equipment, and special tools are the hardware portion of new and old equipment. The other portions are software: drawings, technical manuals, allowance lists, operating instructions, and any other technical documentation. Prior to commencement of an availability, NAVSEA will task the industrial activity with providing a listing and schedule, for installation on board the ship, of all technical documentation for new equipment, including changes to SSR drawings and data. The ship is responsible for the installation and maintenance of technical documentation for all existing equipment.

The status of the installation of technical documentation will be reported in the Material Condition/Crew Readiness Status Report.

3.6.6 Ship's Selected Records.

a. The SSRs includes various tables, charts, drawings, damage control books and plates, technical manuals and other data selected for their reference value and kept current throughout the life of the ship. Accurate SSRs are necessary for configuration control, maintenance support and troubleshooting. SSR items are:

(1) Ship's Information Books.

(2) Technical Manuals.

(3) Damage Control Books and Plates.

(4) Propulsion Operating Guides/Engineering Operational Sequencing System.

(5) Ship's Drawing Index (SDI).

(6) Index of Technical Publications.

(7) Docking Drawings (plan showing each of the docking positions).

(8) Booklet of General Drawings.

(9) Tank Capacity and Vehicle Center of Gravity Curves.

(10) Tank Sounding Tables.

(11) Other tables, charts, allowance lists, etc.

(12) Docking Reports (most recent two industrial availability dockings, and any interim reports).

b. The ship should appoint a SSR Coordinator for the availability. The Coordinator should review the SSRs in paragraph 3.6.6 of this chapter, determine which items will be affected by work candidates listed in the approved work package, and send copies of these SSRs to the industrial activity responsible for executing the availability. The copies sent must include markups showing any changes accomplished during previous availabilities since last update. The ship must retain a master copy of each SSR item and keep it current. If SSR is on microfilm/electronic media, mark up hard copy prints.

c. The SSR Coordinator will serve as the ship point of contact for dispatch, receipt and monitoring status of SSR items during the availability.

3.6.7 New Work.

a. New work is any repairs requiring industrial level assistance which are not authorized until after the PAC for public industrial activity availabilities or after the receipt of proposals or bids for private industrial activity availabilities.

b. New work must be requested by message or letter to the appropriate TYCOM (information copy to the Supervising Authority, ISIC, SUBMEPP (Submarines only), or SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only), as applicable. Sample letter/message formats are provided in Appendices **J** and **K** for requesting new work authorization. Work not currently in ship's CSMP must be added to CSMP prior to requesting new work approval.

c. All new work candidates must be reviewed by and agreed to by the assigned MM. MM recommendations regarding requirement to perform repairs, risk assessment, and schedule impact are mandatory. The TYCOM, or the formally designated TYCOM representative, shall be the approving authority for all new work. In the case of private industrial activity availabilities, the TYCOM will certify that, in accordance with Federal Acquisition Regulations, the accomplishment of the new work is of such unusual and compelling urgency so as to require waiving of Competition In Contracting Act public law regulations.

d. (Surflant Ships Only). New work on all Naval Surface Force, U.S. Atlantic Fleet availability KRTs will only be authorized as follows:

(1) Where there is no assigned MM, Type Desk Officer (TDO) authorization is required for all new work when the government estimate exceeds $5,000. Only new work absolutely necessary to carry out the intent of the Ship Alteration (SHIPALT) and Repair Package work item may be authorized.

(2) Where a MM is assigned, all new work requires Commander, Naval Surface Force, U.S. Atlantic Fleet (TYCOM) authorization. The MM acts for the TYCOM onsite in this case.

3.6.8 Trials, Inspections and Crew Certification.

3.6.8.1 Surface Ship (Non-Nuclear).

a. Crew Certification. Crews in ships undergoing major CNO Maintenance Availabilities must be effectively trained in standard operating procedures, emergency bills, casualty drills, etc., and be thoroughly cognizant of equipment either newly installed or relocated during the availability. Based on the length and type of availability, Crew Certifications will be conducted in accordance with references (j), (k) and (l), as applicable.

b. LOA. LOA will be conducted, using references (m) and (n), if the availability exceeds 120 days or as deemed necessary by the TYCOM. The ISIC, assisted by an assessment team provided by FLTCINC N7, will conduct the LOA. LOAs will be scheduled by means of the ISICs input into the normal scheduling process and conducted in accordance with references (m) and (n). Reference (n) provides specific guidance for Pre-LOA Equipment Operations, such as, the use of Gas Turbines and Diesel Generators during an availability.

c. Steam Testing. All steam systems/equipment worked by the industrial activity shall be tested in accordance with the Testing Plan developed by the industrial activity. Ship's Force shall work closely with the industrial activity, providing necessary assistance and support, to carry out the Test Plan.

d. Dock Trials. During an industrial activity availability and prior to conducting post-repair trials, the engineering plant shall be tested to ensure its readiness for sea. All special sea details and required general quarters will be manned throughout the trials. Ordinarily, dock trials can be completed in one day or less. The minimum requirements for Dock Trials are listed in Appendix **L** of this chapter.

e. Fast Cruise.

(1) All ships completing a CNO Maintenance Availability shall conduct a Fast Cruise where the ship assumes, insofar as practical, an "at sea" posture while inport with all equipment/systems used to the maximum extent possible. The primary purpose of the Fast Cruise is to determine and certify the state of training of ship's company as adequate to conduct at-sea operations. The progress toward this goal is a critical evolution ongoing throughout the availability requiring the TYCOM and ship's CO attention. The training program must be designed to have completed all training necessary to safely operate the ship at sea prior to Fast Cruise. The Fast Cruise provides the opportunity to measure ship's preparedness; it is not a basic training period. Commencement of Fast Cruise requires TYCOM permission. Appendix **M** of this chapter provides a sample message format for Ship's Request for Permission to Commence Fast Cruise.

(2) The following procedures pertain to the conduct of Fast Cruise:

(a) Fast Cruise will be included as a major event and scheduled for at least two days duration by the industrial activity in the case of ships undergoing a CNO maintenance availability greater than six months in duration or at least one day for ships undergoing a CNO maintenance availability less than six months in duration. The Fast Cruise shall follow Dock Trials and precede Sea Trials.

(b) A schedule of proposed events shall be promulgated by the ship to all activities concerned and shall be concurred with by the industrial activity.

(c) Limited numbers of industrial activity personnel may be permitted to be aboard as necessary to continue testing and production work on system as required. Shop and technical personnel shall be permitted on board as instructors, troubleshooters and QA representatives of the industrial activity. Equipment that is not complete shall not be included in the Fast Cruise. Settlement of the foregoing provisions shall be reached by mutual agreement between the CO and the industrial activity, as warranted.

(d) As a minimum standard, system operation tests and drills described in Appendix **N** of this chapter shall be conducted in all Fast Cruises. It is intended that the necessary prerequisite training shall have already been accomplished.

(3) Ship's CO shall report completion of Fast Cruise to the TYCOM. Appendix **O** of this chapter is a sample message format for Ship's Report of Fast Cruise Completion.

f. Sea Trials.

(1) Sea Trials (or Post Repair Trials) constitute the final determination of a ship's material readiness and ability to rejoin the Fleet as a fully operational unit. Each Sea Trial will be conducted in accordance with an agenda prepared by the industrial activity, concurred with by the ship's CO, and approved by the TYCOM. The Sea Trial Agenda will be prepared in four

phases and will contain the minimum requirements of Appendix **P** of this chapter, a time-oriented sequence of events in Gantt chart form, and a matrix of fleet services required to support the trial. The requesting ship/industrial activity will arrange for these Fleet services in accordance with FLTCINC Instructions. Since the purpose of the trial is to determine the material readiness of the ship, all systems/equipments overhauled by the industrial activity will be tested in accordance with an industrial activity prepared test procedure which will document the results of the test and require operation of the system/equipment in all modes. A Ship's Force Trial Officer will be appointed to coordinate with the industrial activity Trial Coordinator throughout the Sea Trial. The Trial Officer will accept the results of all tests for the ship. Ship's Force personnel will operate all equipment during the Sea Trial in accordance with standard operating instructions or Sea Trial test procedures, as appropriate. Commencement of Sea Trials requires TYCOM permission. Appendix **Q** of this chapter is a sample message format.

(2) During Sea Trials the ship's CO will advise the TYCOM of major events accomplished and/or significant problems encountered/outstanding on a daily basis. Appendix I of this chapter provides desired format for this report.

3.6.8.2 Surface Ship (Nuclear).

a. Crew Certification. Crews in ships undergoing major CNO Maintenance Availabilities must be effectively trained in standard operating procedures, emergency bills, casualty drills, etc., and be thoroughly cognizant of equipment either newly installed or relocated during the availability. Based on the length and type of availability, Crew Certifications will be conducted in accordance with references (k), (l), (o) and (p), as applicable.

b. Steam Testing. All steam systems/equipment worked by the industrial activity shall be tested in accordance with the Testing Plan developed by the industrial activity. Ship's Force shall work closely with the industrial activity, providing necessary assistance and support, to carry out the Test Plan.

c. PORSE/RSE. Based on the length of the availability, crew turnover and cold iron time, a PORSE/RSE will be scheduled and conducted in accordance with reference (q).

d. Dock Trials. During an industrial availability and prior to conducting post-repair trials, the engineering plant shall be tested to ensure its readiness for sea. All special sea details and required general quarters will be manned throughout the trials. Ordinarily, dock trials can be completed in one day or less. The minimum requirements for Dock Trials are listed in Appendix **L** of this chapter.

e. Fast Cruise.

(1) All ships completing a CNO maintenance availability shall conduct a Fast Cruise where the ship assumes, insofar as practical, an "at-sea" posture while inport with all equipment/systems utilized to the maximum extent possible. The primary purpose of the Fast Cruise is to determine and certify the state of training of ship's company as adequate to conduct at-sea operations. The progress toward this goal is a critical evolution ongoing throughout the availability requiring TYCOM and ship's CO attention. The training program must be designed to have completed all training necessary to safely operate the ship at sea prior to Fast Cruise. The Fast Cruise provides the opportunity to measure ship's preparedness; it is not a basic training period. Commencement of Fast Cruise requires TYCOM permission. Appendix **M** of this chapter provides a sample message format for Ship's Request for Permission to Commence Fast Cruise. For ships completing Complex Overhaul or Complex Refueling Overhaul, additional requirements for obtaining permission to commence Fast Cruise are contained in reference (p).

(2) The following procedures pertain to the conduct of Fast Cruise:

(a) Fast Cruise will be included as a major event and scheduled for at least two days duration by the industrial activity in the case of ships undergoing a CNO maintenance availability greater than six months in duration or at least one day for ships undergoing a CNO maintenance availability less than six months in duration. The Fast Cruise shall follow Dock Trials and precede Sea Trials.

(b) A schedule of proposed events shall be promulgated by the ship to all activities concerned and shall be concurred with by the industrial activity.

(c) Limited numbers of industrial activity personnel may be permitted to be aboard as necessary to continue testing and production work on systems as required. Shop and technical personnel shall be permitted on board as instructors, troubleshooters and QA representatives of the industrial activity. Equipment that is not complete shall not be included in the Fast Cruise. Settlement of the foregoing provisions shall be reached by mutual agreement between the ship's CO and industrial activity, as warranted.

(d) As a minimum standard, system operation tests and drills described in Appendix **N** of this chapter shall be conducted in all Fast Cruises. It is intended that the necessary prerequisite training shall have already been accomplished.

(e) Additional requirements pertaining to nuclear powered ship Fast Cruises are contained in reference (r).

(3) Ship's CO shall report completion of Fast Cruise to the TYCOM. Appendix **O** of this chapter is a sample message format for Ship's Report of Fast Cruise Completion.

f. Sea Trials.

(1) Sea Trials (or Post Repair Trials) constitute the final determination of a ship's material readiness and ability to rejoin the Fleet as a fully operational unit. Each Sea Trial will be conducted in accordance with an agenda prepared by the industrial activity, concurred with by the ship's CO, and approved by the TYCOM. The Sea Trial Agenda will contain the minimum requirements of Appendix **P** of this chapter, a time-oriented sequence of events required to support the trial. The requesting ship/industrial activity will arrange for these Fleet services in accordance with FLTCINC Instructions. Since the purpose of the trial is to determine the material readiness of the ship, all systems/equipments overhauled by the industrial activity will be tested in accordance with an industrial activity prepared test procedure which will document the results of the test and require operation of the system/equipment in all modes. A Ship's Force Trial Officer will be appointed to coordinate with the industrial activity Trial Coordinator throughout the Sea Trial. The Trial Officer will accept the results of all tests for the ship. Ship's Force personnel will operate all equipment during the Sea Trial in accordance with standard operating instructions or Sea Trial test procedures as appropriate. Commencement of Sea Trials requires TYCOM permission. Appendix **Q** of this chapter is a sample message format.

(2) During Sea Trials the ship's CO will advise the TYCOM of major events accomplished and/or significant problems encountered/outstanding on a daily basis. Appendix I of this chapter provides the desired format for this report.

3.6.8.3 Trials, Inspections and Certification Minor Availabilities (Less Than Six Months) (Submarines Only).

a. Duties and Responsibilities for Sea Trials and Inspections. Reference (s) as applicable delineates the TYCOM's responsibility for operational control of assigned submarines during trials and for assuring that the crew and ship have attained satisfactory state of training, administrative, operational and material readiness for at-sea operations during the trials. Appendix **R** of this chapter provides a detailed summary of trial and inspection milestones required for minor submarine availabilities.

b. General Instructions for Industrial Activity Availability Trials and Inspections.

(1) Fast Cruise may not commence until Dock Trials have been satisfactorily completed and a satisfactory state of crew training (if required) and material readiness (if required), as delineated by this manual, has been certified. The required inspections and tests and their associated time periods may be modified by the TYCOM upon request from the cognizant ISIC.

(2) Sea Trials involving escorts will not normally be scheduled to commence on a weekend. When circumstances are such that Sea Trials must be rescheduled or planned to commence on a weekend to avoid costly delays, TYCOM approval will be obtained by the ISIC.

(3) Critical operation of reactors while nuclear powered ships are in a naval or commercial industrial activity will be governed by reference (b). The CO may authorize critical operation of the reactor in support of tasks assigned the ship. However, as long as the ship remains in an industrial activity, the CO will notify the Supervising Authority well in advance of any critical operation of the ship's reactor. This notification shall include the nature and duration of such operations.

(4) In conducting the inspections required herein, inspectors should be guided by the concept that at the start of Fast Cruise, the ship should be, in all respects, ready for Sea Trials with the exception of the additional training the crew will receive during the Fast Cruise.

(5) The requirement for TYCOM SUBSAFE certification of SUBSAFE boundaries not entered by the industrial activity and the material readiness upon completion of an industrial activity availability imposes additional responsibilities on the ISIC inspectors. Included in the material inspection will be a review of all outstanding Forces Afloat Departures from Specifications as defined in Volume V, Part I, Chapter 8 of this manual. A review of the Ship's Force Re-Entry Control Records is necessary for SUBSAFE work accomplished by Forces Afloat in accordance with Volume V, Part I, Chapter 5 of this manual, along with a review of the applicable URO MRC status. A sampling audit of industrial activity work by the ISIC is required by Volume V, Part I, Chapter 9 of this manual.

The ISIC certification message, **in accordance with Appendix S**, will also provide a status report of any outstanding Re-Entries, Forces Afloat Departures from Specifications and delinquent URO MRCs. The scope and nature of this inspection will vary dependent upon the extent and length of the availability. In this regard:

(a) Material certification may be made subject to the correction of specific deficiencies. (Deficiencies are such that they can be readily identified and listed).

(b) Material certification should be postponed to a later date when deficiencies are so significant or so numerous as to preclude correction in the time remaining before the scheduled start of Fast Cruise.

(c) Deficiencies that could affect the safe operation of the ship during Sea Trials must be corrected, reinspected and reported to the TYCOM as having been corrected prior to the start of Fast Cruise.

(6) Inspectors must determine that all work/testing necessary to support Sea Trials has in fact been completed or identified for completion prior to the start of Fast Cruise including the following:

(a) All ship's systems which affect safe operation during Sea Trials must be operable.

(b) All work necessary for safe operation of the ship during Sea Trials which was undertaken by the industrial activity, Ship's Force, FMA, or other outside activities must have been satisfactorily completed and tested. Included must be a check for any "special configuration or installations" ensuring that they have been authorized by the proper authority, that their impact has been fully assessed and that the Sea Trial Agenda includes these impacts or limitations.

(7) Following the completion of the required training and material readiness certification, COs must keep the cognizant ISIC fully informed of any changes in personnel, training and/or material status which could affect the validity of certification. Prompt TYCOM notification is required to permit revision or Operational Orders and services required.

(8) Underway trials following Restricted Availabilities (RAV), particularly initial submerged and test depth trials, must be undertaken with the knowledge that the crew lacks recent experience operating as a unit and that the ship's structure and fittings have not been tested in an at-sea environment. All tests and procedures must be conducted carefully and methodically. Systems and components designed to operate at test depth should **not** be demonstrated at that depth for the sole purpose of proving the design, but instead should be operated at the deepest depth at which they might be used. For example, the hovering system should not be demonstrated at test depth. Trials and tests which are inherently hazardous should not be conducted.

(9) A schedule is required for each underway, dockside or simulated trial. Prerequisites of the first underway period are: satisfactory ship's material condition as shown by the successful completion of alongside tests, salvage inspection, Ship's Force Dock Trial, and a satisfactory state of training as shown by the successful completion of crew certification inspection and Fast Cruise. Fast Cruise deficiencies affecting safe operations revealed in either material conditions or state of training must be corrected prior to getting underway for Sea Trials.

(10) The trial schedule shall include a minimum of six hours of Individual Ship Exercises (ISE) for Ship's Force training. This ISE should be sequenced as soon as practical after the initial tightness dive and should include the necessary evolutions to allow each watch section ship control party to familiarize themselves with their assigned stations and duties. The ship should be operated at moderate speed to develop proficiency prior to the deep dive and full power run. Testing may be scheduled during the ISE period on a not-to-interfere basis with training. The time spent in the initial tightness dive, if at moderate speed, may be included as one section's training. The requirement to provide each watch section ship control party with about two hours experience submerged at moderate speed prior to the deep dive and full power run is mandatory for ship's safety.

(11) All trial periods must be organized such that each member of the command has an opportunity to get six uninterrupted hours of rest during each 24 hour period encompassed by the trials. Sea Trial events which can be accomplished by normal watch sections may be conducted concurrently with crew rest periods.

(12) For industrial activity availabilities, a one to five day deficiency correction period will normally be scheduled subsequent to the Sea Trials and prior to the completion date. The requirement to return to the availability site to collect deficiencies may be waived on a case basis with TYCOM authorization and agreement of the ship's CO and the Supervising Authority if the material condition of the ship so warrants.

3.6.8.3.1 Operating Depth Policy. The TYCOM's policy with respect to maximum allowable operating depths during trials, evolutions to be performed at the various depths, and the prescribed maximum water depth applicable in each case is stated in Volume IV, Part III, Chapter 9 of this manual. In every instance where the maximum authorized operating depth is exceeded, a report shall be made in accordance with reference (t), paragraphs 3.10 and 3.26 through 3.28.

3.6.8.3.2 Propulsion Plant Tests (If Required). For full power trials provisions of reference (u), Section 6 apply. Submarine depth during the submerged full power trial should be consistent with the applicable Submerged Operating Envelope (SOE), based on the Emergency Main Ballast Tank (EMBT) blow from maximum authorized operating depth being previously accomplished. The full power submerged ahead test for commissioned nuclear powered submarines shall be terminated by a back emergency bell. The duration of the back emergency shall be limited to 45 seconds, to be followed immediately by an appropriate ahead bell. Caution must be exercised to avoid developing stern way.

3.6.8.3.3 Ocean Engineering Project Restricted Availability. Certain submarines have been assigned to provide dedicated support to NAVSEA Ocean Engineering (PMS 395) Projects. Ships dedicated to these projects have been assigned to a parent industrial activity which provides Logistic support, performs the maintenance actions required by the Submarine Extended Operating Cycle program and other functions normally provided by an industrial activity. Routine and Submarine Extended Operating Cycle maintenance is factored into the RAV Work Package prepared by the cognizant technical activity in support of the Ocean Engineering Project.

Certification of the work during these RAVs is governed by reference (v), Volume V of this manual and the applicable requirements of paragraph 3.6.8.3 of this chapter for RAVs less than six months duration or paragraph 3.6.8.4 of this chapter for RAVs greater than six months duration. Specific actions and reporting requirements which are mandatory prior to completion of a RAV are summarized in Appendix **R** or Appendix T of this chapter, as applicable. The TYCOM will reiterate these requirements during the RAV by a "Countdown Message". A sample format of this "Countdown Message" is shown in Appendix U of this chapter.

3.6.8.3.4 Salvage Inspection (As Required). Conduct a Salvage Inspection in accordance with Volume IV, Part III, Chapter 3 of this manual. The Salvage Inspection should be conducted early enough in the availability to allow time to complete any mandatory corrective maintenance prior to Fast Cruise.

3.6.8.3.5 Phase II Crew/Material Condition Inspection. A Phase II Crew Certification Inspection is normally not required, but should be determined on a case basis by the parent ISIC. If there will be less than 15% personnel turnover, crew certification may be waived. Should the CO determine that alterations accomplished or the transfer of experienced personnel warrant a crew certification, a formal request shall be submitted to the ISIC. When required, crew certification will be performed in accordance with reference (w). The material certification consisting of an ISIC audit of all Ship's Force SUBSAFE work and a sampling of industrial activity SUBSAFE work in accordance with Volume V, Part I, Chapter 9 of this manual will need to be conducted for all industrial activity availabilities since the extent of the availability is such that an independent evaluation by an organization other than Ship's Force and the industrial activity is required.

3.6.8.3.6 Pre-Critical Inspections. For availabilities where the reactor will be shutdown for 16 weeks or more, it is considered prudent to use an inspection plan similar to that employed by NAVSEA. Normally, the crew's readiness can be assessed within two days using such a plan, which should encompass the following:

a. An administrative review.

b. Observation of basic drills and evolutions not requiring reactor operation.

c. Personnel interviews.

d. Material inspection.

e. Scheduling of Pre-Critical Inspections. The ISIC Pre-Critical Inspection should be scheduled annually by the responsible ISIC about four weeks prior to criticality. The TYCOM should be advised as soon as possible in advance of the tentative date for the ISIC Pre-Critical Inspection and confirmed dates should be established about one month in advance of the inspection.

f. Composition of the Inspection Team. The Pre-Critical Inspection Team should consist of:

   (1) A nuclear trained member of the cognizant ISIC Staff, usually the Squadron Training Officer.

   (2) A qualified nuclear trained officer with experience as an Engineer Officer.

g. Reports of Inspection.

   (1) The Senior Inspector should provide the inspected unit with an informal report of findings by the inspection team, copy to the cognizant ISIC and TYCOM.

(2) The ship's CO shall review the findings of the inspection team and make necessary adjustments to his training program to ensure his crew's readiness for criticality. He shall keep the cognizant ISIC advised of his training plan and his assessment of his crew's progress.

(3) The cognizant ISIC shall review the inspection findings, the CO's training plan and progress evaluations, and direct follow-up reviews and/or inspections necessary to verify the ship's readiness for criticality.

3.6.8.3.7 Dock Trials. Dock Trials must, as a minimum, test those systems/equipments repaired or altered during the availability. The CO should use Appendix V of this chapter as a guide in preparing the Dock Trial Agenda.

3.6.8.3.8 Fast Cruise. Fast Cruise may commence immediately upon completion of Dock Trials and shall consist of **the minimum requirements as set forth in Appendix W.** The requirement for a Fast Cruise **may be less than or greater** than 24 hours **in length** depending upon the length of the availability and the time since the crew last operated the ship at sea. **The CO, with ISIC concurrence, will determine length of the Fast Cruise.** Prior to the ship commencing Fast Cruise, the Supervising Authority shall report to the ship, by message, that all mandatory work approved for accomplishment during the availability is completed. When the ship is ready for sea with the exception of conducting Fast Cruise and after receipt of the SUBSAFE material certification report from the performing activity as required by references (u), (w) and Volume V of this manual, the ship will request permission from the ISIC by priority message to commence Fast Cruise. The ISIC will then, if satisfied with the state of crew training and material readiness, authorize the ship to commence Fast Cruise by message, information copy to CNO, FLTCINC, NAVSEA, and the TYCOM.

a. A 24 hour rest and repair period will normally be scheduled following Fast Cruise and prior to the start of Sea Trials. This rest and repair period may be extended or reduced at the discretion of the ISIC.

b. COs should consider the work and alterations accomplished during the availability when determining the extent of the Fast Cruise. The minimum requirements are listed and identified with an asterisk in Appendix W of this chapter.

3.6.8.3.9 Sea Trials. Upon receipt of the report of successful completion of Fast Cruise from the ship, the ISIC authorizes the ship to get underway for Sea Trials. **For submarines, following completion of Fast Cruise the ISIC will notify the TYCOM of satisfactory completion of Fast Cruise and readiness for Sea Trials using the message format of Appendix S. The submarine TYCOM will authorize the ISIC to allow the ship to get underway for Sea Trials using the message format of Appendix X. Sea Trials following availability are normally conducted with a significant number of "riders". These riders represent NAVSEA, TYCOM and Shipbuilder personnel onboard to** observe **various tests and trial evolutions. The ships normal loadout of Lithium Hydroxide canisters is not sufficient to support this increase in personnel. Therefore, two additional canisters must be carried for each rider exceeding normal crew manning. Lithium Hydroxide canisters are to be obtained from the industrial activity.** Sea Trials are required only as necessary to test work completed during the availability but must include those mandatory requirements identified in Appendix **Y** of this chapter. The industrial activity shall include at least two days in the availability for conduct of Sea Trials. The industrial activity shall prepare a Sea Trial Agenda for Sea Trials conducted after an availability at the industrial activity. For an availability at a FMA, the submarine shall prepare the Sea Trial Agenda, assisted by the industrial activity. The submarine involved shall submit the Sea Trial Agenda to the ISIC for approval, with an information copy to the TYCOM. Extensions or reductions of the Sea Trial period may be granted where warranted by the scope of the work accomplished. Where extension of the Sea Trial period and a change in the availability schedule is required, requests for such extensions must be submitted by the industrial activity to the TYCOM as early as practical. All deficiencies resulting from Sea Trials will be satisfactorily resolved prior to the completion of the availability. If no Sea Trial deficiencies are found, the availability may be completed with TYCOM occurrence at the completion of Sea Trials.

a. EMBT Blow: An EMBT blow is required for each Sea Trial following an industrial activity availability, Restricted Availability Docking (RAD), or RAV of greater than six months duration. EMBT blow shall be conducted in accordance with the applicable URO MRC and does **not** require an escort for EMBT blow at depths of 400 feet or less.

b. Assignment of Escort Ship.

(1) In accordance with reference (x), an escort shall be provided during deep dive submergence trials for ships completing an availability for repair of collision/grounding damage where deformation is observed to be in the hull integrity envelope and/or supporting structure.

(2) In accordance with reference (x), the requirement for providing an escort during deep dive submergence trials upon completion of all other availabilities will be evaluated by Commander, NAVSEA on a case basis. Commander, NAVSEA will advise the applicable Submarine Force Commander in writing whether or **not** an escort will be required based on the scope of work in the availability. In general, an industrial activity availability of less than six months duration should **not** require an escort, since the work typically performed in these availabilities is limited in scope, is carefully controlled and, therefore, does not result in substantial risk of unidentified or incomplete work adversely affecting the SUBSAFE boundary.

(3) Escort requirements should be determined early so that an escort satisfying the requirements of paragraph 3.6.8.4.7.b.(6) of this chapter can be scheduled if required. The TYCOM will in turn request services from the FLTCINC as applicable. As a general rule, pressure hull work which could not affect hull circularity will not require an escort.

(4) Waiver of escort requirements may be requested by message when necessary. The ISIC will request the waiver as soon as possible. The TYCOM will pass the request to Commander, NAVSEA for approval. An escort waiver request message is to include all of the following specific statements, as applicable:

(a) A ( ) inch by ( ) inch hull cut between frames ( ) and ( ) including a ( ) inch section of frame ( ) was the only major hull integrity work accomplished during the availability. If no hull frame cut was made, a positive statement to that effect is required.

(b) The hull cut weld satisfactorily passed RT and 7 day MT non-destructive tests.

(c) Post repair frame circularity check readings are within specifications.

c. Assignment of DSRS During Submarine Sea Trials.

(1) A DSRS, consisting of a designated Deep Submergence Rescue Vehicle (DSRV) and DSRV support ship, will be placed in a modified alert status at the beginning of Sea Trials requiring an escort following in industrial availability or major maintenance availability for:

(a) Ships initial trim and deep dive events.

(b) Subsequent Sea Trials until the completion of the initial dive to design test depth.

(c) If, in the TYCOM's judgement, a Sea Trial requires an escort due to major hull cuts.

(2) The ship conducting Sea Trials will notify COMSUBDEVRON FIVE in San Diego, CA when DSRS services are no longer required due to completion of the events in paragraph 3.6.8.3.9.c.(1) of this chapter or due to delay in completing Sea Trials.

3.6.8.3.10 Interrupted Sea Trials. In the event a Sea Trial is interrupted, or an additional Sea Trial becomes necessary, the following requirements are to be met. These requirements shall be invoked if the ship returns to port for industrial activity repairs which affect SUBSAFE certification or which will require at-sea testing.

a. The industrial activity will draft a revised Sea Trials agenda to support resumption of the trials. This agenda shall be provided to the ISIC for concurrence and TYCOM for information.

b. The ISIC shall report by message (format of Appendix Z of this chapter) to the TYCOM that the material condition of those SUBSAFE Certification boundaries that were installed, repaired and/or tested by Ship's Force is satisfactory for resuming Sea Trials.

c. Upon completion of all of the requirements in paragraphs 3.6.8.3.10 a. and b. above, the TYCOM will provide a message (Appendix AA of this chapter) to the ISIC granting permission to proceed with the conduct of Sea Trials and authorize the ship to dive to the Sea Trial operating depth.

3.6.8.3.11 Post Availability Period. The industrial activity will generally guarantee work accomplished during an industrial activity availability, RAV, or RAD for a period of 90 days from the completion of the availability. This does not include responsibility for the malfunctioning of machinery and equipment due to normal wear, improper adjustment and failure of limited life components. Reference (y) tasks naval industrial activities to appoint a guarantee engineer as the industrial activities point of contact during the guarantee period. Ship's Force is required to report any guarantee items to the industrial activity prior to the guarantee period expiration date. If operational commitments prohibit reporting prior to expiration of the 90 day period, the ship should report any problems as soon as operations permit. A message is the preferred method of reporting these items. These guarantee SITREPs outlining specific deficiencies must be submitted to the Supervising Authority with a copy to the TYCOM, ISIC and NAVSEA (pass to NAVSEA 07). Additionally, any Casualty Report (CASREP) submitted during the guarantee period must also be addressed to the Supervising Authority and NAVSEA with passing instructions to NAVSEA 07.

3.6.8.4 Trials, Inspections and Certification Major Availabilities (Greater Than Six Months) (Submarines Only). The following paragraphs summarize policies and responsibilities with respect to trials, tests and inspections incident to completion of major submarine availabilities. The TYCOM will maintain operational control of the submarine throughout the overhaul, conversion, refueling or restricted/post-conversion availability through the designated ISIC. For Atlantic/Pacific submarine units undergoing availabilities in West/East coast industrial activities, respectively, the TYCOM responsible for conducting all trials and inspections specified in this manual is the TYCOM with Operational Control of the unit.

a. Policy. Major availabilities require a succession of inspections and tests which culminate in a series of underway trials. References (p), (u), (z) and (aa) set forth the philosophy and sequencing of the various categories of these tests and trials, the results of which determine the readiness of the ship at the completion of overhaul or repair. References (ab) and (s) delineate the Force Commander's responsibility for operational control of submarines assigned during trials and for assuring that the crew and ship have attained a satisfactory state of training, administrative, operational and material readiness

for at-sea operations during the trials. ISICs and COs shall comply with the provisions of this volume in the conduct of trials incident to the conversion, overhaul and refueling of submarines assigned.

b. General Information for Industrial Activity Availability Trials and Inspections.

(1) The normal sequence of events leading up to Sea Trials is described in paragraph 3.6.8.4.b.(2) of this chapter. Fast Cruise may not commence until Dock Trials have been satisfactorily completed and a satisfactory state of crew training and material readiness, has been certified. The required inspections and tests and their associated time periods may be modified by the TYCOM upon request from the cognizant ISIC.

(2) The following inspections and tests are required:

(a) Periodic Monitoring Inspections.

(b) Pre-Critical Inspection (two days).

(c) Phase I Inspection (one day).

(d) Salvage Inspection (one day).

(e) Dock Trials (one day).

(f) Phase II Crew/Material Certification (two days).

(g) Audit of Ship's Force Re-Entry control and Departure from Specification records.

(h) Minimum of 48 hours for industrial activity work (following Phase II crew certification) (two days).

(i) Fast Cruise normally consists of two days of uninterrupted operation, one day to allow the industrial activity and Ship's Force personnel to correct deficiencies, followed by two more days of uninterrupted operation (five days).

(j) Rest and repair period (about one day).

(k) Underway for initial Sea Trials.

(l) Appendix T of this chapter provides a detailed summary of major trial and inspection milestones required for industrial activity availabilities of six months or greater in duration.

(3) When circumstances are such that Sea Trials must be rescheduled or planned for a weekend to avoid costly delays, FLTCINC approval will be obtained by the Supervising Authority on a case basis.

(4) Critical operation of reactors while nuclear powered ships are in a naval or commercial industrial activities will be governed by reference (b). Until satisfactory completion of post repair propulsion plant trials (in the case of ships in industrial availabilities), permission to conduct critical reactor plant operations must be obtained from NAVSEA. Subsequent to completion of propulsion plant post repair trials, the CO may authorize critical operation of the reactor in support of tasks assigned the ship. However, so long as the ship remains in an industrial activity, the CO will notify the industrial activity, as appropriate, well in advance of any critical operations of the ship's reactor. This notification shall include the nature and duration of such operations. Crew certification inspections will not involve or require critical operation of the reactor.

(5) In conducting the inspections required herein, inspectors should be guided by the concept that at the start of Fast Cruise the ship should be, in all respects, ready for Sea Trials with the exception of the additional training the crew will receive during Fast Cruise.

(6) NAVSEA SUBSAFE Certification Audit (SSCA). During major CNO Maintenance Availabilities NAVSEA will conduct a SSCA as required by reference (v). A copy of the SSCA will be provided to the Supervising Authority, the ships' CO, the TYCOM and FLTCINC. Prior to conducting Fast Cruise the Supervising Authority must report to NAVSEA and the TYCOM that those parts of the ship installed, repaired and/or tested by the industrial activity are certified satisfactory for post repair Sea Trials, including the resolution of NAVSEA SSCA Category I recommendations, status of all incomplete SSCA Category IA recommendations, and report that the ship is ready for commencement of Fast Cruise.

(7) The requirement for TYCOM certification of SUBSAFE boundaries not entered by the industrial activity and material readiness of upon completion of an industrial activity imposes additional responsibilities on the ISIC inspectors. A formal audit of Ship's Force Re-Entry control and Departure from Specification records shall be conducted by the ISIC QA Officer prior to Fast Cruise. Included in the audit and material inspection will be a review of ship procedures to ensure no unauthorized work was conducted within certified boundaries, and all outstanding Forces Afloat Departures from Specification, as defined in Volume V, Part I, Chapter 8 of this manual, granted prior to the availability which required corrective action. There may or may not have been restrictions involved with these departures. A review of the Ship's Force Re-Entry Control Records and Procedures is necessary for SUBSAFE work accomplished by Forces Afloat in accordance with Volume V, Part I, Chapter 5 of this manual, along with a review of the applicable URO MRC status. The ISIC certification message will also provide a statement certifying that ship and industrial activity procedures ensured that no unauthorized work was conducted within the certified boundaries; and when required, will also provide a status report of any outstanding Re-Entries, Forces Afloat Departures from Specification and delinquent URO MRCs. The scope and nature of this inspection will vary dependent upon the extent and length of the availability. In this regard:

(a) Material certification may be made subject to the correction of specific deficiencies. (Deficiencies are such that they can be readily identified and listed).

(b) Material certification should be postponed to a later date when deficiencies are so significant or so numerous as to preclude correction in the time remaining before scheduled commencement of Fast Cruise.

(c) Deficiencies that could affect the safe operation of the ship during Sea Trials must be corrected, reinspected and reported to the TYCOM as having been corrected prior to the start of Fast Cruise.

(8) Inspectors must determine that all work/testing necessary to support Sea Trials has in fact been completed or identified for completion prior to the commencement of Fast Cruise including the following.

(a) All ship systems which effect safe operation of the ship during Sea Trials must be operable.

(b) All work necessary for safe operation during Sea Trials which was undertaken by the industrial activity, Ship's Force, FMA, or other outside activities must have been satisfactorily completed and tested. Included must be a check for any "special configuration or installations" ensuring that they have been authorized by proper authority, that their impact has been fully assessed and that the Sea Trial Agenda considers these impacts or limitations.

(9) Following completion of the required training and material readiness certification, COs must keep the cognizant ISIC fully informed of any changes in personnel, training and/or material status which could affect the validity of certification. Prompt notification is required to permit revision of Operation Orders and services required.

(10) Underway trials following major availabilities, particularly initial submerged and test depth trials, must be undertaken with the knowledge that the crew lacks recent experience operating as a unit and that the ship's structure and fittings have not been tested in an at-sea environment. All tests and procedures must be conducted carefully and methodically. Systems or components designed to operate at test depth should not be exercised at test depth for the sole purpose of proving the design. They should be operated at the deepest depth at which they might be used. Trials and tests which are inherently hazardous should not be conducted. For example, the automated hovering system should not be demonstrated at test depth. Reference (ac) provides pertinent information regarding the testing of seawater systems during underway trials.

(11) An approved agenda is required for each underway period. The prerequisites for the first underway period are set forth in paragraphs 3.6.8.4.4 through 3.6.8.4.7 of this chapter.

(12) The first underway tests will be of limited scope. The initial tightness dive will be a deliberate, planned, step-by-step evolution using conservative angles and moderate speed. The submarine shall be accompanied by an escort ship properly equipped with sonar communication equipment as described in paragraph 3.6.8.4.7 of this chapter. The maximum water depth for this dive shall be 400 feet, as prescribed by reference (s).

(13) The initial trial schedule shall include a minimum of six hours of submerged ISE for Ship's Force training. This ISE should be sequenced as soon as practical after the initial tightness dive and should include the necessary evolutions to allow each watch section ship control party to familiarize themselves with their assigned stations and duties. The ship should be operated at moderate speed to develop proficiency prior to the deep dive and full power run. Testing may be scheduled during the ISE period on a not-to-interfere basis with training. The time spent in the initial tightness dive, if at moderate speed, may be included as one section's training. The requirement to provide each watch section ship control party with about two hour's experience submerged at moderate speeds prior to the deep dive and full power run is mandatory for ship safety.

(14) All trial periods must be organized such that each member of the command has an opportunity to get six uninterrupted hours of rest during each 24 hour period encompassed by the trials. Sea Trial events which can be accomplished by normal watch sections may be conducted concurrently with crew rest periods.

(15) A deficiency correction period will be scheduled subsequent to the last Sea Trial and prior to the completion date. The scheduled length and location of this deficiency correction period will be determined by the type and magnitude of the deficiencies to be corrected.

3.6.8.4.1 Responsibilities. The responsibilities for trials and inspections are as follows:

a. NAVSEA.

(1) Provide approved procedures for tests of the reactor plant required for nuclear refueling and for reactor plant repairs and alterations accomplished in the availability.

(2) Authorize critical operation of the reactor as outlined in paragraph 3.6.8.4.b.(4) of this chapter.

(3) Approve the scheduling and the sequencing of nuclear propulsion plant tests and concur in the schedule and sequence for nuclear propulsion plant trials.

(4) Arrange for technical assistance from the U.S. Department of Energy as required.

(5) Conduct SSCAs and provide to the Supervising Authority, the ship's CO and the TYCOM and FLTCINC a copy of the SSCA report.

(6) Review and concur with the Sea Trial Agenda submitted by the Supervising Authority.

(7) Certify (Appendix **AB** of this chapter) to the TYCOM, information copies to CNO and FLTCINC, that the material SUBSAFE condition of those parts of the ship installed, repaired and/or tested by the industrial activity are certified as satisfactory for Sea Trials and controlled dives to a specified depth (usually test depth).

(8) Following verification from the Supervising Authority of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations, certify to the TYCOM, with information copies to CNO and the appropriate FLTCINC, the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory, and recommend authorization for URO to design test depth subject to TYCOM verification that SUBSAFE certification of areas outside the industrial activity AWP has been sustained.

b. Supervising Authority.

(1) Accept custody of and responsibility for special nuclear material upon delivery from the U.S. Department of Energy.

(2) Accept custody of and responsibility for spent nuclear fuel and other special nuclear material removed from the submarine incident to refueling until transferred to the U.S. Department of Energy.

(3) Transfer custody of and responsibility for nuclear fuel and other special nuclear material to the CO of the submarine undergoing refueling when it has been installed in the submarine.

(4) Provide sufficient time for crew training during the major availability period to permit the Ship's Force to attain a state of training adequate to ensure proper operation and safety of the ship and its personnel during Fast Cruise and Sea Trials.

NOTE: THE SCHEDULING AND SEQUENCING OF TRIALS INVOLVING TESTS OF A REACTOR PLANT PROPULSION PLANT MUST BE APPROVED BY THE FLTCINC AND CONCURRED TO BY NAVSEA.

(5) Prior to Fast Cruise, submit the Sea Trial Agenda to NAVSEA for concurrence and to the TYCOM for approval. Resolve any differences between NAVSEA and the TYCOM. Submit the Deep Dive Test Form and EMBT Blow Test Procedures to NAVSEA for approval. The Sea Trial Agenda shall provide the detailed sequence of events for conducting the Sea Trials required to be performed.

(6) Schedule the ship salvage inspection to ensure sufficient time for the TYCOM to conduct the inspection and for correction of deficiencies.

(7) Report the status of the material condition of those parts of the ship installed, repaired and/or tested by the industrial activity prior to each Sea Trial.

(a) Report by message (Appendix **AC** of this chapter) to NAVSEA and TYCOM, in advance of the scheduled start of Fast Cruise, that those parts of the ship installed, repaired and/or tested by the industrial activity are certified satisfactory for post repair Sea Trials, including resolution of NAVSEA SSCA Category I recommendations and status of all incomplete NAVSEA SSCA Category IA recommendations, and report that the ship is ready for commencement of Fast Cruise. The message shall also state that there are no conditional SUBSAFE Deviations or Waivers which have not been satisfied or cite those that exist, and that, subject to satisfactory completion of Fast Cruise and resolution of mandatory deficiencies, the material condition of the ship is satisfactory for commencement of Sea Trials.

NOTE: SUBSEQUENT TO THE MESSAGE IN PARAGRAPH 3.6.8.4.1.b. (7)(a) OF THIS CHAPTER, ANY DEFICIENCY DISCOVERED AND THE CORRECTIVE ACTION TAKEN WHICH AFFECTS THE WATERTIGHT INTEGRITY, THE RECOVERABILITY OF THE SHIP, THE OPERATION OF THE SHIP'S CONTROL SURFACES, OR THE SHIP'S SALVAGE CAPABILITY SHALL BE REPORTED TO NAVSEA AND THE APPROPRIATE FLTCINC AND TYCOM BY MESSAGE CITED IN PARAGRAPH 3.6.8.4.1.b. (7)(a) OF THIS CHAPTER. PREVIOUS CERTIFICATION OF MATERIAL CONDITION SHALL BE SUSPENDED UNTIL NAVSEA AND TYCOM REVIEW THE REPORT AND NAVSEA CERTIFIES TO THE TYCOM BY MESSAGE THAT THE MATERIAL CONDITION OF THE PARTS OF THE SHIP COVERED BY THE INDUSTRIAL ACTIVITY AWP IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH, AND THE TYCOM IN TURN CERTIFIES TO THE SHIP THAT THE SHIP'S SUBSAFE CERTIFICATION BOUNDARY IS SATISFACTORY FOR SEA TRIALS TO BE A SPECIFIED DEPTH.

(b) Report by message (Appendix **AD** of this chapter) to NAVSEA and TYCOM, with the concurrence of the CO, the successful completion of Fast Cruise and SUBSAFE material condition readiness as a prerequisite to start of Sea Trials.

(c) Where a previous Sea Trial was aborted, or corrective actions for Sea Trial deficiencies require an additional deep dive, report by message (Appendix **AE** of this chapter) to NAVSEA that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for Follow-On Sea Trials to test depth.

(8) Report by message (Appendix **AF** of this chapter) to NAVSEA, satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations. Report that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for URO to test depth. Identify any deferred SUBSAFE work and/or conditionally approved deviations and waivers.

(9) Coordinate the schedule for Fast Cruise and post repair trials with the TYCOM/ISIC representative.

(10) Recommend to the President, Board of Inspection and Survey and the TYCOM, information to NAVSEA, FLTCINC and TYCOM/ISIC representative, when post availability Material Inspection and Underway Trials by the Board of Inspection and Survey are required.

c. TYCOM.

(1) Schedule the FLTCINC PORSE as recommended by the industrial activity in the Key Events Schedule and confirmed by the parent TYCOM/ISIC representative upon completion of the ISIC Pre-Critical Inspection.

(2) Provide Fast Cruise, Sea Trial and completion prerequisites message (Appendix U of this chapter) to the ship approximately 90 days prior to the start of Sea Trials.

(3) Assign material representatives to be embarked during trials as required by paragraph 3.6.8.4.2 of this chapter.

(4) Inform the CNO and FLTCINC of the scope and schedule of the trials. This is normally done by copy of the TYCOM/ISIC representative Operation Order to the CNO and FLTCINC.

(5) Provide escorts as required. Send a Sea Trials Support Services message (Appendix E of this chapter) to specify DSRS "modified alert" requirements.

(6) Conduct ship Salvage Inspection.

(7) Approve Sea Trial Agenda.

(8) Report, by message (Appendix **AG** of this chapter), to NAVSEA crew readiness for Sea Trials and request NAVSEA Nuclear Propulsion Directorate (08) authorization for critical operations.

(9) Prior to each Sea Trial, following certification from the Supervising Authority and NAVSEA that the material condition of those parts of the ship installed, repaired and/or tested by the industrial activity is satisfactory for Sea Trials and TYCOM verification that the SUBSAFE certification of those parts of the ship not affected by the industrial activity AWP has been sustained, report by message (Appendix **AH** of this chapter) to the ship, with copies to CNO and NAVSEA, reporting that the status of the SUBSAFE Certification Boundary is satisfactory and authorizing the conduct of Sea Trials and dives to specified depth.

(10) Following verification from NAVSEA of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, certification that the SUBSAFE material condition of those parts of the ship installed, repaired and/or tested by the industrial activity is satisfactory, and upon confirmation of maintenance of SUBSAFE certification of portions of ship not affected by the industrial activity, report by message (Appendix **AI** of this chapter) to the ship, with copies to CNO and NAVSEA, reporting status of SUBSAFE certification and authorizing URO to test depth.

NOTE: SUBSEQUENT TO THE MESSAGES, APPENDICES H, AB, AC AND AG OF THIS CHAPTER, ANY DEFICIENCY DISCOVERED AND THE CORRECTIVE ACTION TAKEN WHICH AFFECTS THE WATERTIGHT INTEGRITY, THE RECOVERABILITY OF THE SHIP, THE OPERATION OF THE SHIP'S CONTROL SURFACES OR THE SHIP'S SALVAGE CAPABILITY SHALL BE REPORTED TO NAVSEA, TYCOM AND FLTCINC BY THE SUPERVISING AUTHORITY (INDUSTRIAL ACTIVITY DEFICIENCY) OR SHIP CO (FORCES AFLOAT DEFICIENCY) IN MESSAGE FORMAT. PREVIOUS CERTIFICATION SHALL BE CONSIDERED RESCINDED. WHEN A REVIEW OF THE DEFICIENCY IS COMPLETED BY NAVSEA FOR INDUSTRIAL ACTIVITY ITEMS AND TYCOM FOR SHIP'S FORCE ITEMS, NAVSEA WILL CERTIFY TO THE TYCOM THAT THE MATERIAL CONDITION OF THE PARTS OF THE SHIP COVERED BY THE INDUSTRIAL ACTIVITY AWP IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH. THE TYCOM IN TURN CERTIFIES THAT THE SHIP'S SUBSAFE CERTIFICATION BOUNDARY IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH.

d. ISIC/TYCOM Representative.

(1) Conduct periodic monitoring of ships using paragraph 3.6.8.4.4 of this chapter as a guide to include:

(a) Technical, administrative and training assistance visits directed toward improvements in management and conduct of maintenance during the availability and training tasks (Tech Assists).

(b) Evaluation visits to determine the state of administration and training (Work-Ups).

(c) Spot checks to monitor progress and effectiveness in specific material, training and administrative areas (Monitor Visits).

(d) Monitor Maintenance Reports that require post availability actions (Liaison Action Requests, Deficiency Management Tracking System items, Departure From Specifications, Deficiency Reports, etc.) for inclusion in the ship's CSMP, as required.

(2) Conduct a Pre-Critical Inspection of the Engineering Department in accordance with paragraph 3.6.8.4.4 of this chapter to determine the ship's readiness for either the RSE or the FLTCINC PORSE (as applicable.).

(3) Schedule a salvage inspection by the operating forces in time to have discrepancies corrected prior to the start of Fast Cruise.

(4) Conduct a formal Phase I certification inspection of the ship's company in accordance with reference (w). The purpose of this inspection shall be to audit the readiness and training of the Ship's Force, particularly in the areas of watchstander qualifications, damage control readiness, status of operational and emergency bills, present on board of essential technical manuals, and general operational knowledge. This inspection shall be scheduled about one month prior to Fast Cruise and should include written examinations and personal interviews with officers and key enlisted men to determine their readiness and status of training as outlined for Phase I. A comparison of personnel allowance (including Navy Enlisted Classification requirements) versus onboard count shall be made to ensure that the ship is adequately manned.

(5) Prior to Fast Cruise, the ISIC QA Officer shall conduct a formal audit of Ship's Force Re-Entry Control and Departure from Specification Records. Using the SUBMEPP PMR and URO MRC scheduling reports and current industrial activity/Ship's Force updates to the latest report, ensure all **"D"-Level** PMR and URO MRC accomplishment is current. The ISIC shall forward the audit results to the TYCOM via the cognizant Commander, Submarine Group. The ISIC will then report to the TYCOM by message (Appendix H of this chapter) the status of the crew/material certification. An update of this certification is needed prior to Sea Trials and following the rescinding of certification noted in the NOTE following paragraph 3.6.8.4.1.c. (10) of this chapter.

(6) Witness and certify to the TYCOM that the state of crew training is satisfactory for at-sea operations in accordance with reference (w). This will be done during a two day period subsequent to Dock Trials and prior to Fast Cruise as outlined in paragraph 3.6.8.4.4.e. of this chapter. This two day period shall be scheduled so that there is normally a 48 hour period between the end of this event and the beginning of Fast Cruise. This two day Phase II crew certification period is divided into a 40 hour crew work-up and rest period and an eight hour modified dockside Operational Readiness Inspection. The entire period should be scheduled to minimize interference with industrial activity work. However, since the certification must be conducted most carefully to be meaningful, the officer scheduling the certification should coordinate industrial activity interference during the eight hour modified Operational Readiness Inspection. This certification should be thorough and meticulous. Pressure from the industrial activity or any other source to compromise the submarine's safety must not be permitted to influence the judgment of the certifying officers. The desired overall sequence of these events is shown in Appendix T of this chapter.

(7) Conduct a material inspection of the ship concurrent with the inspection of paragraph 3.6.8.4.1.d.(5) of this chapter. This inspection should be conducted using the guidelines contained in paragraphs 3.6.8.4.b.(5) and 3.6.8.4.b.(7) of this chapter.

(8) Satisfactory completion of the inspections of paragraphs 3.6.8.4.1.d.(5) through 3.6.8.4.1.d.(7) of this chapter should be reported to the TYCOM in one "PRIORITY" crew certification message in accordance with sample message format of Appendix H of this chapter paralleled by a telephone call to the TYCOM Watch Officer reporting the date-time group of the message. If significant deficiencies exist or it appears that extension of time is required to correct training/material deficiencies, the TYCOM shall be immediately advised by telephone and by message. The Supervising Authority will be included as an information addressee.

(9) Receive from the CO/Supervising Authority the scope, schedule and agenda of tests for Sea Trials for review. The concurrence of NAVSEA is required for the sequencing and scheduling of propulsion plant Sea Trials for industrial activity availabilities.

(10) Prior to Sea Trials, report by message (Appendix **AJ** of this chapter) to the TYCOM the material certification of the ship.

(11) Advise the TYCOM by message of escort requirements and ensure that an escort is provided during the initial tightness dive, during the deep dive and during emergency blow tests as required by paragraph 3.6.8.4.7.a. of this chapter.

(12) Arrange for a DSRV to be on "modified alert" during the Sea Trials via message (Appendix E of this chapter) to COMSUBDEVRON FIVE.

(13) Provide updated sea trials status by telephone to COMSUBDEVRON FIVE if DSRV "mod-alert" support services are in use in accordance with paragraph 3.6.8.4.7.b.(6) of this chapter.

(14) Provide an operation order to be used incorporating the provisions of reference (s). Provide a copy to the TYCOM and, where appropriate, the local ISIC, information to CNO and FLTCINC. Include within operation orders pertaining to post-availability trials, instructions to send specific messages announcing the start and completion of initial deep dive with the TYCOM as an information addressee.

(15) Arrange for the embarkation of technical personnel who may be assigned by NAVSEA to observe tests or trials.

(16) Arrange for the assignment of operating areas and communications frequencies.

(17) Assign a submarine qualified officer to act as TYCOM representative embarked during Sea Trials as required by paragraph 3.6.8.4.2 of this chapter. When necessary, provide a gold dolphin wearer to ride the escort vessel.

(18) When authorized by the TYCOM, grant permission for the ship’s CO to commence Sea Trials in accordance with the approved Sea Trials Agenda.

(19) Upon completion of Sea Trials, report by message (Appendix **AK** of this chapter) to the TYCOM the status of any work performed by Forces Afloat within the SUBSAFE boundary, status of Departures from Specification and status of URO MRCs.

e. Ship CO.

(1) Carry out his command responsibilities in accordance with reference (e).

NOTE: SUBMARINES UNDERGOING INDUSTRIAL ACTIVITY AVAILABILITIES NORMALLY REMAIN IN COMMISSION WITH A CREW ASSIGNED. THE CO REMAINS FULLY RESPONSIBLE FOR THE NUCLEAR PROPULSION PLANT DURING ALL PHASES OF THE AVAILABILITY, INCLUDING ALL POST REPAIR TESTS AND TRIALS.

(2) Develop and execute training plans and documents in order to maintain the state of training of the crew adequate to support post repair tests, inspections and trials. The nature and scope of the training required will depend to a great extent on the length of the availability. Care shall be taken to ensure that these plans and documents are in conformance with instructions and procedures approved by NAVSEA.

(3) Supervise operation of the nuclear propulsion plant. Critical operations will be conducted as set forth in paragraph 3.6.8.4.b.(4) of this chapter.

(4) Prepare the ship's engineering personnel and propulsion plant and spaces for examination by the Director, Division of Naval Reactors, U.S. Department of Energy or the FLTCINC Nuclear Propulsion Examining Board. For PORSE conducted by the Nuclear Propulsion Examining Board, direct liaison is authorized with the industrial activity to ensure estimated dates are included in the Key Events schedule.

(5) Maintain PMS in accordance with reference (ad), SUBSAFE Re-Entry control in accordance with Volume V, Part I, Chapter 5 of this manual to ensure no unauthorized Ship's Force work is conducted within the certified SUBSAFE boundaries, Reactor Plant PMS in accordance with reference (ae) and Planned Maintenance Management Program in accordance with reference (af), for work performed by Forces Afloat. Ensure records are ready for ISIC audit conducted prior to Fast Cruise.

(6) Participate in at-sea periods prior to the first Sea Trials as follows:

(a) If possible accompany the preceding ship in overhaul on the first Sea Trial to learn how the propulsion trial is run.

(b) For ships in availabilities 18 months or longer, the CO shall participate in an underway period of at least five days duration about six months before Phase II Crew Certification. The purpose of this ride is to refresh him on what is important to ensure the safe conduct of his own Sea Trials and to insure his crews training program is emphasizing those matters. This underway should be on a ship, preferably of the same class, which is concentrating on basic submarine operations, such as Selected Refresher Training or ISE, in order for the CO to see evolutions such as coming to periscope depth, snorkeling, ventilating, casualty training, etc. If the availability schedule has 10-12 weeks between Power Range Testing and Phase II Crew Certification, the CO should go to sea about two months before Power Range Testing. The intent is for the CO to go to sea after having been in the industrial activity for a fair amount of time (normally one year or more), but with sufficient time remaining to improve his own training program if necessary. During these underways, the CO should have time on the bridge and also observe piloting and navigation.

(7) Determine, in conjunction with the Supervising Authority, the nature and extent of the post-repair Sea Trials. Review the Sea Trial Agenda, including the sequence and duration of each test. The CO will concur with the trial agenda, then the Supervising Authority will submit it to NAVSEA for concurrence and the TYCOM for approval. Provide copies of the approved detailed schedule and agenda for underway trials to the local ISIC, if appropriate; the escort ship and embarked TYCOM representative, if assigned. This schedule and agenda shall include:

(a) The minimum requirements in paragraph 3.6.8.4.7 of this chapter.

(b) A firm time scheduled for the conduct of all tests and trials showing their sequence and duration.

(c) General prerequisites for the conduct of each test. Detailed prerequisites should be itemized as part of individual test requirements.

(d) Responsibility for the conduct of each test (industrial activity or ship).

(e) Support required from the operating forces for the conduct of each test.

(f) Provision for adequate crew rest time during Sea Trials. Opportunity for six uninterrupted hours of rest in each twenty-four hour period is a minimum for each member of the command.

(g) Provision for a minimum of six hours of uninterrupted independent ship exercises for crew training following the initial tightness dive and prior to the deep dive.

(h) Underway tests may be run during ISE and rest periods on a not-to-interfere basis. Specifically, tests which can be conducted underway under normal operating conditions without manning of special watch stations that require extra military personnel, may be scheduled during rest periods. Tests which will not interfere with Ship's Force drills and training exercises may be conducted during ISE periods.

(8) Undergo a salvage inspection in accordance with Volume IV, Part III, Chapter 3 of this manual.

(9) Conduct one day Ship's Force Dock Trials in accordance with paragraph 3.6.8.4.5 of this chapter.

(10) Demonstrate the state of training of the crew in accordance reference (w).

(11) Ensure that all pertinent alongside tests, inspections, and trials are conducted.

(12) Certify to the designated ISIC/TYCOM representative that all salvage inspection discrepancies affecting safe conduct of Sea Trials have been corrected. Deliver a copy of the salvage plan to the escort ship, if required, and confer with the escort ship to coordinate communications and operational procedures, ensuring that the escort is fully informed as to the submarine's condition and intentions.

(13) Concur with Supervising Authority message (Appendix **AC** of this chapter) concerning Fast Cruise/Sea Trial readiness.

(14) Report by message (Appendix **AL** of this chapter) to the TYCOM that crew and ship are ready for Sea Trials. List exceptions such as completion of Fast Cruise, removal of shore power connections, etc.

(15) When authorized by the TYCOM and, when permission has been granted by NAVSEA 08 for critical reactor operations, conduct a Fast Cruise in accordance with paragraph 3.6.8.4.6 of this chapter.

(16) Concur with Supervising Authority message (Appendix **AD** of this chapter) that Fast Cruise was successfully completed, all mandatory deficiencies for Sea Trials have been corrected and recommend commencement of Sea Trials.

(17) Report completion of Fast Cruise to the TYCOM by message (Appendix **AM** of this chapter) and request permission to commence Sea Trials.

(18) When all the requirements of this instruction are completed and permission has been received from the TYCOM, proceed to sea in accordance with operation order. At sea, carry out the approved Sea Trial Agenda and Schedule.

NOTE: SUBSEQUENT TO THE MESSAGES, APPENDICES AH AND AJ OF THIS CHAPTER, ANY DEFICIENCY DISCOVERED AND THE CORRECTIVE ACTION TAKEN WHICH AFFECTS THE WATERTIGHT INTEGRITY, THE RECOVERABILITY OF THE SHIP, THE OPERATIONS OF THE SHIP'S CONTROL SURFACES OR THE SHIP'S SALVAGE CAPABILITY SHALL BE REPORTED TO NAVSEA, TYCOM AND FLTCINC BY THE SUPERVISING AUTHORITY/ISIC/TYCOM REPRESENTATIVE BY MESSAGE. PREVIOUS CERTIFICATION MESSAGES SHALL BE SUSPENDED. WHEN A REVIEW OF THE DEFICIENCY IS COMPLETED BY NAVSEA FOR INDUSTRIAL ACTIVITY ITEMS AND TYCOM FOR SHIP'S FORCE ITEMS, NAVSEA WILL CERTIFY TO THE TYCOM THAT THE MATERIAL CONDITION OF THE PARTS OF THE SHIP COVERED BY THE INDUSTRIAL ACTIVITY AWP IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH. THE TYCOM IN TURN CERTIFIES THAT THE SHIP'S SUBSAFE CERTIFICATION BOUNDARY IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH.

3.6.8.4.2 Type Commander Embarked Representative. For the first Sea Trial after a major industrial activity availability of a nuclear powered submarine, an unrestricted line officer (a former CO senior to the CO) normally provided by the ISIC/TYCOM representative will be the TYCOM embarked representative. This officer has the authority to act for the TYCOM in making on the spot changes to approved Sea Trial Agenda. A material representative may also be assigned. When assigned, he will serve as a technical advisor to the TYCOM embarked representative on matters pertaining to Sea Trial Agenda changes, compliance with this manual, and disposition of emergent material deficiencies.

a. For the initial dive to maximum authorized depth for an industrial activity availability trials, a TYCOM material representative may be designated by the TYCOM. This officer has the authority to act for the TYCOM in making on-the-spot changes to approved Sea Trial Agenda.

b. The Officer in Tactical Command for trials will be the CO of the submarine undergoing Sea Trials unless otherwise designated by the ISIC/TYCOM.

c. When no TYCOM representative is designated, the designated embarked representative of the ISIC/TYCOM representative has the authority to act for the TYCOM in approving on-the-spot changes to approved Sea Trial Agenda.

d. In the absence of a TYCOM or ISIC/TYCOM representative, the CO is authorized to act for the TYCOM in approving on-the-spot changes to approved Sea Trial Agenda.

NOTE: SEA TRIAL AGENDAS ARE DEVELOPED AS A RESULT OF LESSONS LEARNED OVER A LONG PERIOD OF TIME. EVENTS AND SEQUENCES OF EVENTS ARE IMPORTANT AND SHOULD BE CHANGED ONLY AFTER THOROUGH DELIBERATION.

3.6.8.4.3 Availability Completion Prerequisites. The following requirements will be included in the TYCOM "Countdown Message" outlined in paragraph 3.6.8.4.8 of this chapter:

a. The Supervising Authority will report by message (Appendix **AF** of this chapter) to NAVSEA, satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations. Report that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for URO to test depth. Identify any deferred SUBSAFE work and/or conditionally approved deviations and waivers.

b. Following verification from the Supervising Authority of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations, NAVSEA shall certify by message (Appendix **AQ** of this chapter) to the TYCOM, with information copies to CNO and the appropriate FLTCINC, the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory, and recommend authorization for URO to design test depth subject to TYCOM verification that SUBSAFE certification of areas outside industrial activity AWP has been sustained.

c. Following verification from NAVSEA of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, certification that the SUBSAFE material condition of those part of the ship installed, repaired and/or tested by the industrial activity is satisfactory, and upon confirmation of maintenance of SUBSAFE certification of portions of ship not affected by the industrial activity, the TYCOM shall report by message (Appendix **AI** of this chapter) to ship, with copies to CNO and NAVSEA, reporting status of SUBSAFE certification and authorizing URO to test depth.

3.6.8.4.4 Inspection Procedures.

a. Periodic Monitoring, Inspections, and Visits.

(1) Purpose.

(a) To provide to ships in availability such administrative and training assistance as is necessary to improve the Ship's Force conduct of the availability, maintenance and training tasks. Visits of this nature are termed Tech Assists.

(b) To evaluate the effectiveness of administration and training. Inspections of this nature are termed Work-Ups.

(c) To conduct spot checks to monitor progress in specific material, administrative and training areas. Visits of this nature are termed Monitor Visits.

(2) Discussion. The extent, type and frequency of periodic monitoring, inspections, and visits should be determined on a case basis by the responsible ISIC or TYCOM representative. The initial inspection should be broad in scope in order to appraise the responsible ISIC of the adequacy of the ship's performance and progress. Normally, the initial visit will indicate the necessary frequency and scope of subsequent Tech Assists and Monitor Visits. In general, any required Work-Ups should be scheduled in advance of Key Events during the availability.

(3) Areas of Inspection Coverage. Initial inspections normally examine the effectiveness of Ship's Force preparations for an availability. Subsequent inspections and visits should review the following areas as appropriate for the purpose of the specific inspection.

(a) Review procedures and administrative steps for provisional watch station qualifications.

(b) Review department organization manuals.

(c) Review department instructions and administrative procedures.

(d) Review ship's instructions and administrative procedures.

(e) Review department logs, operating instructions and casualty procedures.

(f) Review ship's standard operating procedures and the ship's organization and regulations manual.

(g) Review training conducted and planned to support the goal of requalifying or reestablishing proficiency of watchstanders.

(h) Monitor performance of watchstanding.

(i) Conduct spot check of ship's records and logs in use.

(j) Review Ship's Force controlled work (SUBSAFE, Level I and Nuclear) and procedures to ensure proper controls and documentation in accordance with this manual and no unauthorized work is conducted within the SUBSAFE boundaries.

(k) Review status of Ship's Force responsible PMS/IEM.

(l) Inspect installed equipment for cleanliness and adequate protection from damage.

(m) Review Tag-Out and Work Authorization Logs. Spot check for compliance in accordance with current directives.

(n) Inspect ship for hazards.

(o) Inspect provisions for casualty control including watertight integrity.

(p) Verify that all COSAL material including operating space items, have been off-loaded to processing areas which provide appropriate security.

(q) Inspect the processing area to verify provisions and procedures for careful ILO inventory.

(r) Review response of supply system to requisitions in support of Ship's Force work.

(s) Verify that items are withdrawn from the ship's COSAL stock undergoing inventory/ILO only on an emergency basis and that such issues are well documented with appropriate adjustments to the inventory records.

(t) Evaluate general safety practices.

(4) Scheduling of Periodic Monitoring, Inspection and Visits. Periodic Monitoring, Inspections, and Visits should be scheduled by the responsible ISIC as appropriate for the purposes of the inspection concerned. Some monitoring visits should be conducted on an unannounced basis. These inspections should be given so as to minimize interference with industrial activity and Ship's Force work.

(5) Reports of Inspection. Formal reports of the results of periodic monitoring, inspection and visits are not required by the TYCOM. However, the responsible ISIC should advise the TYCOM in situations when the attainment of required progress toward completion of Key Events is in jeopardy.

b. Pre-Critical Inspection.

(1) Purpose. To evaluate the readiness of the engineering department to undergo a PORSE by the FLTCINC Nuclear Propulsion Examining Board or a RSE by representatives from NAVSEA 08.

(2) Discussion. The conduct of the Pre-Critical Examination by the ISIC is not intended to duplicate the inspections for which readiness is being evaluated. It is considered prudent, however, to use an inspection plan similar to that employed by NAVSEA. Normally, the crew's readiness can be assessed within two days using such a plan, which should encompass the following:

(a) An administrative review.

(b) Observation of basic drills and evolutions not requiring reactor operation.

(c) Personnel interviews.

(d) Material inspection.

NOTE: FOR SSBN PRE-CRITICAL INSPECTIONS, THE CREW TO BE INSPECTED IS THE COMPOSITE CREW SELECTED FOR INITIAL CRITICALITY AND POWER RANGE TESTING.

(3) Scheduling of Pre-Critical Inspections. The ISIC Pre-Critical Inspection should normally be scheduled by the responsible ISIC about four weeks prior to criticality (non- refueling availability) and six weeks prior to initial criticality for an overhaul involving refueling. The TYCOM should be advised as soon as possible in advance of the tentative date for the ISIC Pre-Critical Inspection and confirmed dates should be established about one month in advance of the inspection.

(4) Composition of the Inspection Team. The Pre-Critical Inspection Team should consist of:

(a) A nuclear trained member of the cognizant ISIC Staff, usually the Squadron Training Officer.

(b) A nuclear trained officer with experience as an Engineer Officer.

(c) When available, a nuclear trained officer from the TYCOM's Staff will participate in ISIC Pre-Critical Inspections involving refueling. Arrangements for participation of the TYCOM Staff member should be initiated by the responsible ISIC at least one month in advance of the anticipated ISIC Pre-Critical Inspection.

(5) Reports of Inspection.

(a) The Senior Inspector should provide the inspected unit with an informal report of findings by the inspection team, copy to the cognizant ISIC and TYCOM.

(b) The ship's CO shall review the findings of the inspection team and make necessary adjustments to the training program to ensure the crew's readiness for the examination. The ship's CO shall keep the cognizant ISIC advised of the training plan and the assessment of the crew's progress.

(c) The cognizant ISIC shall review the inspection findings, the CO's training plan and progress evaluations, and direct follow-up reviews and/or inspections necessary to verify the ship's readiness for the examination.

c. Phase I Certification Inspection.

(1) Purpose. To determine the state of readiness and training of the Ship's Force, particularly in the areas of watchstander qualification, damage control readiness, status of operational and emergency bills, present onboard supply of essential technical manuals and general operational knowledge.

(2) Discussion. The guidelines for the Phase I inspection are provided in reference (w). The intent of the inspection is to provide a preliminary estimate of readiness and to identify areas requiring action prior to final certification (Phase II).

(3) Scheduling of Phase I Certification Inspection. Phase I Inspections should be scheduled by the responsible ISIC about 35 days before scheduled initial Sea Trials.

(a) Chief Inspector - ISIC representative of appropriate seniority.

(b) Assistant Chief Inspector - a submarine CO.

(c) Assistant inspectors for the following departments/areas - overall training, executive, operations, navigation, communications, weapons, first lieutenant, engineering and material.

(d) The inspector for the engineering areas of nuclear powered submarines will be a nuclear trained officer qualified as an Engineer Officer.

(4) Reports of Inspection.

(a) The Chief Inspector shall provide the inspected ship with an informal report of findings by the inspection team.

(b) In the event that inspection results indicate the readiness for final (Phase II) certification in the required time cannot be assured, the responsible ISIC should advise the TYCOM of the circumstances.

d. Material Inspection. Prior to certifying commissioned ships' readiness for at-sea operations, conduct a material inspection to determine that the ship is materially ready for at-sea operations in accordance with Volume V of this manual. In addition, on all ships conduct a Salvage Inspection in accordance with Volume IV, Part III, Chapter 3 of this manual. Results of material inspections should be reported with Phase II crew certification reports.

e. Phase II Certification Inspection.

(1) Purpose. To certify that the state of training of the crew is satisfactory for at- sea operations.

(2) Discussion. The requirements for Phase II certification inspection are provided in reference (w).

(3) Scheduling of Phase II Certification Inspections. Phase II inspections should be scheduled by the responsible ISIC about nine days prior to Sea Trials.

(4) Composition of the Inspection Team. The requirements for Phase II Certification Team composition are the same as those for Phase I.

(5) Reports of Certification. The Phase II Certification and Material Certification Reports are combined and submitted in accordance with Appendix H of this chapter.

3.6.8.4.5 Dock Trials. Ship's Force Dock Trials provide the opportunity to test and check out systems, components and portable equipment prior to the Fast Cruise training period simulating underway conditions. Although normally a period of one day is assigned for integrated Ship's Force Dock Trials, tests and evolutions performed in the one to two weeks prior to the Dock Trial date may be accepted by the CO as fulfilling the requirements of this paragraph. The purpose of Dock Trials is to afford the ship an opportunity to demonstrate that major systems and equipments are in fact ready to support Sea Trials. It is expected that individual equipments will have been satisfactorily tested prior to commencement of the integrated operational tests afforded by Ship's Force Dock Trials. Appendix V of this chapter lists the minimum requirements for Dock Trials and will be used by the ship's CO in preparing for and conducting Dock Trials.

3.6.8.4.6 Fast Cruise. The overall objective of the Fast Cruise is to train the crew and determine the crew's ability to take the ship to sea safely. In addition to the normal underway routine, the CO shall have all equipments operated to check for proper operation and to determine the state of training of the crew. Fast Cruise shall, as far as is practicable, simulate at sea operating conditions. It is to be conducted by the Ship's Force and is to be unhampered by repair work or by movement of industrial activity personnel through the ship. The Supervising

Authority shall **not** schedule any trials, tests or other work to be performed on the ship during this period. The Fast Cruise should be four days in duration for nuclear ships and two days for non-nuclear submarines. It should be completed within a five-day period. It should end not more than three days prior to underway trials. Normally, the ship will go to sea for underway trial within a day after completion of Fast Cruise. Should the 72 hour period be exceeded, the TYCOM may direct an additional Fast Cruise. The parent ISIC will make formal recommendations to the TYCOM as to the desired period of Fast Cruise. Appendix W of this chapter lists the minimum requirements for Fast Cruise and will be used by the ship's CO in preparing for and conducting Fast Cruise. Additional drills and operations are at the discretion of the ship's CO. The ship shall be operated as if underway, simulating the various evolutions required for safe operation of the ship. Each underway section shall be exercised in the evolutions which are normally performed on a section basis. During each evolution, check out all communication systems. Ensure that each is in proper working order and that, where duplicate systems exist, a priority system is designated.

3.6.8.4.7 Sea Trials. Appendix **AR** of this chapter delineates the minimum requirements incident to Sea Trials following industrial activity availabilities. **For submarines, following completion of Fast Cruise the ISIC will notify the TYCOM of satisfactory completion of Fast Cruise and readiness for Sea Trials using the message format of Appendix S. The submarine TYCOM will authorize the ISIC to allow the ship to get underway for Sea Trials using the message format of Appendix X. Sea Trials following availability are normally conducted with a significant number of "riders". These riders represent NAVSEA, TYCOM and Shipbuilder personnel onboard to observe various tests and trial evolutions. The ships normal loadout of Lithium Hydroxide canisters is not sufficient to support this increase in personnel. Therefore, two additional canisters must be carried for each rider exceeding normal crew manning. Lithium Hydroxide canisters are to be obtained from the industrial activity.** The Supervising Authority and ship's CO will use Appendix **AR** of this chapter in preparing for and conducting Sea Trials. A Submarine Distress Sonar Transponder Set (AN/BQN-8A or equivalent) shall be installed in the freeflood area of the sail for both Atlantic/Pacific Fleet submarines. For Atlantic Fleet submarines under the operational control of Commander, Submarine Force Pacific Fleet, the distress Sonar Transponder shall remain installed for the duration of the post availability Sea Trials.

a. Assignment of Escort Ship an escort is required for:

(1) Initial tightness and deep dives after a major industrial activity availability, including EMBT blow at the completion of each of these dives.

(2) Any EMBT blow from greater than 400 feet. Rationale is to give submarine added protection to prevent interference from any surface contact.

NOTE: IN ALL CASES, HULL STRENGTH/TIGHTNESS AND VALVE OPERATIONS WILL HAVE BEEN TESTED TO A DEPTH EQUAL TO OR GREATER THAN EMBT BLOW DEPTH BEFORE TESTING EMBT.

(3) For second and subsequent underway periods if major hull or sea connected system work has been accomplished since last Sea Trials.

b. Escort Ship Capability Requirements. The escort ship must have the following capabilities with the necessary equipment in an operating condition:

(1) Radio Communication:

(a) Ability to transmit and receive on two UHF and on HF circuits simultaneously including 243.0 and 121.5 MHz.

(b) Equipped to tape record all non-secure radio transmissions between the submarine and the escort.

(c) Capability to communicate on the submarine HF/UHF circuits.

(2) Sonar and Sonar Communications:

(a) Equipped with an Underwater Telephone (WQC) or (UQC) capable of communicating to the submarine's test depth.

(b) Equipped with active and passive sonar. The TYCOM can waive this requirement on a case-by-case basis.

(c) Sufficient operators to man both WQC/UQC and sonar on a continuous basis, including CW capable operator on call if the requirement for CW communications develops.

(d) Equipped to tape record all WQC/UQC transmissions between the submarine and the escort.

(e) Explosive charge signals available.

(3) Navigation:

(a) Equipped with an operable LORAN C or more accurate equipment.

(b) Equipped with an operable Dead Reckoning Tracers.

(c) Possess navigational capability to fix his position to two mile average accuracy.

(d) Fathometer.

(e) Gyrocompass.

(f) Underwater log.

(4) Sea Keeping and Speed:

(a) Ability to remain at sea for one week in State 6 seas.

(b) Be capable of making twelve knots. Escorts will keep the submarine informed of any speed/sea state limitations. In addition, if the escort has an unfaired WQC hydrophone, it shall notify the submarine of the maximum sea state and speed which will not restrict WQC communications. If the submarine requires a speed above this limit, the submarine should run a track about the escort within WQC range.

(5) When an escort ship is other than another submarine, the ISIC will designate an officer qualified in submarines (Gold Dolphins) to be embarked during the escort duty. An escort is not required on Board of Inspection and Survey (INSURV) trials since the EMBT blow is done in accordance with applicable URO MRC vice from maximum authorized operating depth.

(6) Assignment of DSRS During Submarine Sea Trials.

(a) A DSRS, consisting of a designated DSRV and DSRV Support Ship, will be placed in a modified-alert status at the beginning of Sea Trials requiring an escort following an industrial activity availability or major maintenance period for:

1 The ship's initial trim and deep dive event.

2 Subsequent Sea Trials until the completion of the initial dive to design test depth.

3 If, in the TYCOM's judgment, a Sea Trial requires an escort due to major hull cuts, etc. The TYCOM shall obtain NAVSEA concurrence when determining the need for escort/DSRS services.

(b) The ship conducting Sea Trials will notify COMSUBDEVRON FIVE in San Diego, CA when DSRS services are no longer required due to completion of the events in paragraph 3.6.8.4.7.(6).(a) of this chapter or due to delay in completing Sea Trials.

3.6.8.4.8 Interrupted/Additional Sea Trials. In the event a Sea Trial is interrupted, or an additional Sea Trial becomes necessary, the following requirements are to be met. These requirements shall be invoked if the ship returns to port for industrial activity repairs which affect SUBSAFE certification or which will require at-sea testing. These requirements will be reiterated by the TYCOM via a special "Countdown Message" Appendix **AN** of this chapter when the need arises:

a. The industrial activity will draft a revised Sea Trials Agenda to support resumption of the trials. This Agenda shall be provided to NAVSEA for concurrence and TYCOM for approval.

b. The ISIC shall report by message (format of Appendix **AJ** of this chapter) to the TYCOM that the material condition of those SUBSAFE Certification boundaries that were installed, repaired and/or tested by Ship's Force is satisfactory for resuming Sea Trials.

c. The Supervising Authority shall provide a report, by message (Appendix **AE** of this chapter), to NAVSEA (information copy to the TYCOM) that the material condition of the systems installed, repaired and/or tested by the industrial activity is satisfactory for resumption of Sea Trials. As a minimum, the report should state the status of all incomplete Category IA Audit Items resulting from the NAVSEA SSCA and that all SUBSAFE work has been performed in accordance with the requirements of reference (v).

d. The CO of the ship shall provide a report by message (format of Appendix **AM** of this chapter) to the TYCOM stating that the crew and ship are ready for Sea Trials. Any exceptions are to be listed in this message.

e. NAVSEA (PMS 392), upon receipt of the Supervising Authority report, shall recertify the material condition of the ship for operation to a specific operating depth for Sea Trials and report recertification by message (Appendix **AO** of this chapter) to the TYCOM.

f. Upon completion of all of the requirements in paragraphs 3.6.8.4.8.a. through e above, the TYCOM will provide a message (Appendix **AP** of this chapter) to the ship granting permission to proceed with the conduct of Sea Trials and authorize the ship to dive to the Sea Trial operating depth recommended by NAVSEA.

3.6.8.4.9 Availability Completion Prerequisites. Upon completion of Sea Trials and correction/resolution of deficiencies, the following requirements must be met prior to completion of an industrial availability greater than six months duration. These requirements will be reiterated in the TYCOM "Countdown Message" Appendix U or **AN** of this chapter:

a. The Supervising Authority shall report by message (Appendix **AF** of this chapter) to NAVSEA, satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory sea trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations. Report that the SUBSAFE material condition of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for URO to test depth. Identify any deferred SUBSAFE work and/or conditionally approved deviations and waivers.

b. Following verification from the Supervising Authority of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations, NAVSEA shall certify by message (Appendix **AQ** of this chapter) to the TYCOM, with information copies to CNO and the appropriate FLTCINC, the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory, and recommend authorization for URO to design test depth subject to TYCOM verification that SUBSAFE certification of areas outside the industrial activity AWP has been sustained.

c. Following verification from NAVSEA of satisfactory completion of all sea trials, completion of controlled dives, correction of all mandatory sea trial deficiencies, certification that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory, and upon confirmation of maintenance of SUBSAFE certification of portions of ship not affected by the industrial activity, the TYCOM shall report by message (Appendix **AI** of this chapter) to the ship, with copies to CNO and NAVSEA, reporting status of SUBSAFE certification and authorizing URO to test depth.

3.6.8.4.10 Post-Availability Period. The industrial activity will generally guarantee work accomplished during an availability for a period of 90 days from the completion of the availability. This does not include responsibility for malfunctioning of machinery and equipment due to normal wear, improper adjustment and failure of limited life components. Reference (y) tasks naval industrial activities to appoint a guarantee engineer as the industrial activities point of contact during the guarantee period. Ship's Force is required to report any guarantee items to the industrial activities prior to the guarantee period expiration date. If operational commitments prohibit reporting prior to the 90 day period, the ship should report any problems as soon as operations permit. A message is the preferred method of reporting these items. These guarantee SITREPs outlining specific deficiencies must be submitted to the Supervising Authority with a copy to the TYCOM, ISIC and NAVSEA (pass to NAVSEA 07). Additionally, any CASREPs submitted during the guarantee period must also be addressed to the Supervising Authority and NAVSEA with passing instructions to NAVSEA 07.

3.7 AVAILABILITY COMPLETION DEPARTURE CONFERENCE.

3.7.1 Departure Conference. At the end of the availability, the Supervising Authority, FMA (if applicable), and Ship's Force will conduct a Departure Conference to finalize the status of all work performed during the availability. The conduct of this conference is similar to that of the Progress Reviews conducted in accordance with paragraph 3.6.3.1.b. of this chapter, and should be used to gather all necessary information to draft and send the Availability Completion Message. As a minimum, the Availability Completion Message should address all areas addressed in the Weekly Progress Message, Appendix I of this chapter, as well as the following:

a. Unresolved maintenance issues and guarantee work items.

b. Report of configuration changes resulting from alterations installed during the availability.

c. Summarize the NAVSEA waivers issued during the availability.

d. Identify those work candidates that will be deferred until the next industrial availability.

3.8 POST AVAILABILITY.

3.8.1 Guarantee Period. Duration of guarantee work periods will be determined by the type of availability, activities involved and contractual requirement.

a. Timely identification and submission of guarantee work items is essential. Use of priority messages is encouraged.

b. A guarantee engineer as defined by reference (y), if assigned, will adjudicate all submitted guarantee work items.

c. Duration of the guarantee period will be determined by the type of availability, activities involved, and contractual requirements.

3.8.2 Completed Availability Work Package. Within six months after the completion of the availability, SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only)/applicable TYCOM (other Surface Ships) will issue the Completed Work Package.

APPENDIX A

TYPICAL CNO AVAILABILITY PLANNING MILESTONES (SUBMARINES ONLY)

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
1. Identify Non-Nuclear Title "K" SHIPALTs, fund and authorize planning and procurement.	NAVSEA	A-24
2. Identify Non-Nuclear Title "D" and "F" SHIPALTs, fund and authorize SUBMEPP to accomplish planning.	TYCOM	A-24
3. Issue Advance Planning Letter for NAVSEA funded Alterations and Selected Restricted Availability Advance Planning Milestones.	NAVSEA	A-18
4. Update CSMP. Submit to SUBMEPP via ISIC	Ship	A-16
5. Issue Preliminary AWP.	SUBMEPP	A-15
6. Issue AWP Supplement (replaces inventory of PMRs/URO).	SUBMEPP	A-12 to -14
7. Issue SHIPALT drawings.	Design Agent	A-12
8. Issue Final Planning Letter for NAVSEA funded Non-Nuclear Title "K" SHIPALTs.	NAVSEA	A-12
9. Issue Initial LLTM Report for Centrally Procured LLTM.	LLTM Agent	A-12
10. Issue Preliminary Work Sequence Schedules, provide estimates for NAVSEA funded Non-Nuclear Alterations.	Industrial Activity	A-11
11. Conduct Ship's Force Meeting.	SUBMEPP	A-10
12. Conduct initial Shipcheck.	Industrial Activity	A-10
13. Conduct site Logistics and Facilities Check (for Selected Restricted Availability at FMA only).	Industrial Activity	A-10
14. Issue message providing centrally procured LLTM and FMPMIS material availability status and best estimated delivery dates for Non-Nuclear Title "K" SHIPALTs.	NAVSEA	A-10
15. Host WDC with customers and Industrial Activity.	SUBMEPP	A-10
16. Response to NAVSEA's Material Message issued.	Industrial Activity	A-9
17. Issue Interchangeability Data Sheets for Advance Equipment Repair Program components.	SUBMEPP	A-9
18. Provide standard Pre-Availability Test Memorandum.	SUBMEPP	A-9
19. Issue SHIPALT Authorization (240 day) letter for NAVSEA funded SHIPALTs.	NAVSEA	A-8

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
20. Issue Proposed AWP.	SUBMEPP	A-8
21. Confirm ability to accomplish all authorized Alterations during Availability.	Industrial Activity	A-7
22. Submit PAT results and Proposed changes to the AWP.	Industrial Activity/Ship	A-5
23. Submit Valve Lists and Sonar Testing, Assessment and Grooming Report for the AWP.	Ship/ISIC	A-5
24. Provide screening action on Pre-Arrival Test results and proposed changes to AWP.	TYCOM	A-4
25. Confirm AWP manday estimate vs. availability duration for compatibility.	Industrial Activity	A-3
26. Convene PAC.	Industrial Activity	A-3
27. Provide preliminary review estimates (90 day estimates) for NAVSEA funded Non-Nuclear Alterations.	Industrial Activity	A-3
28. Confirm receipt of centrally procured LLTM, Fleet Modernization Program Management Information System (FMPMIS) material and AERP components.	Industrial Activity	A-2
29. Issue PAC Report.	Industrial Activity	A-2
30. Promulgate Availability schedule.	Industrial Activity	A-2
31. Deliver centrally procured LLTM.	LLTM Agent	A-2
32. Deliver AERP components.	SUBMEPP	A-2
33. Provide final review estimates (45 day estimates) for NAVSEA funded Non-Nuclear Alterations.	Industrial Activity	A-1.5
34. Issued Approved AWP.	SUBMEPP	A-1
35. Start Availability.	Industrial Activity	A-0
36. Conduct Arrival Conference	Industrial Activity	A-0
37. Issue monthly Availability Status messages.	Industrial Activity/ Supervisor of Shipbuilding (SUPSHIP)	Monthly

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
38. Submit Reactor Plant Configuration Change Reports (RPCCR) or OPNAV 4790/CK forms for completed Alterations to ship's CO.	Industrial Activity	Monthly
39. Update material history records, manual changes, onboard repair parts for complete alterations. Endorse and forward RPCCRs/OPNAV 4790/CK forms.	Ship	Monthly
40. Complete Availability.	Industrial Activity	C
41. Issue Availability Completion Message.	Industrial Activity	C+1

NOTE: "A" AND "C" IN THE "TIMELINE" COLUMN REPRESENT THE START AND COMPLETION DATES, RESPECTIVELY. THE DATES SHOWN ARE FOR ILLUSTRATION ONLY, SINCE ACTUAL MILESTONES VARY DEPENDING ON SHIP OPERATING SCHEDULES, START DATE CHANGES, AND OTHER CONSIDERATIONS.

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APPENDIX B

TYPICAL CNO AVAILABILITY PLANNING MILESTONES (SURFACE FORCE ONLY)

* 1 - Both Naval and Private Industrial Activities
2 - Private Industrial Activities only

MILESTONES	*CODE	RESPONSIBLE ACTIVITY	TIMELINE (Months)
1. Review CSMP and make sure that all ship deferred maintenance actions desired for accomplishment are documented.	1	Ship	Continuous
2. Review FMPMIS and prepare recommended list of Title "D" and "F" SHIPALTs for the TYCOM.	1	TYCOM	A-18 to A-16
3. Title "D" and "F" SHIPALTs authorized.	1	TYCOM	A-16
4. Issue Title "K" SHIPALT advance planning letter.	1	NAVSEA	A-16
5. Issue milestone target dates/Preliminary AWP.	1	TYCOM	A-14
6. Design shipcheck before development of Ship Installation Drawings.	1	Design Agent	A-14 to A-12
7. Advance planning briefing.	1	TYCOM	A-14 to A-12
8. Pre-Availability Test and Inspection or Work Package Definition Conference, including combat systems and inspection of boilers (if possible).	1	TYCOM/Industrial Activity/Ship	A-12 to A-10
9. Pre-Availability Test and Inspections or WDC completion meeting.	1	TYCOM/Ship/Industrial Activity	A-12 to A-10
10. Issue Pre-Availability Test and Inspections or Work Package Definition Conference Meeting report (within 10 days after conference).	1	TYCOM/Industrial Activity	A-11 to A-9
11. Issue Proposed AWP.	1	TYCOM	A-10 to A-7
12. Initiate Ship's Force material planning and procurement.	1	Ship	A-7

MILESTONES	*CODE	RESPONSIBLE ACTIVITY	TIMELINE (Days)
13. Issue Post-WDC report.	2	TYCOM	A-245 to A-135
14. Issue list of work items screened for Forces Afloat accomplishment.	1	TYCOM	A-150 to A-110
15. Complete Bid Specifications.	2	SUPSHIP	A-135 to A-110
16. Review Bid Specifications for errors, omissions, duplications (may require conference to resolve).	2	TYCOM/Ship	A-135 to A-110
17. Issue solicitation for bids or proposals to contractors.	2	SUPSHIP	A-135 to A-110
18. Award Contract.	2	SUPSHIP	A-30
19. Develop General Purpose Electronic Test Equipment management program.	1	Ship	A-110 to A-30
20. Forces Afloat WDC (optional).	1	Ship/RSG/TYCOM	A-90 to A-45
21. Order material for Ship's Force work.	1	Ship	A-90 to A-45
22. Develop Off-Load Plan for arrival at industrial activity (including off-load assistance, security and storage arrangements).	1	Ship	A-60 to A-10
23. Review SSRs for changes required as a result of authorized work. Turn over items (including changes previously accomplished) to Planning industrial activity.	1	Ship/Planning Yard	A-90 to A-45
24. Ship representative visit industrial activity for preliminary off-ship berthing and storage inspection.	1	Ship/Industrial Activity	A-30 to A
25. Phase II Pre-availability Tests and Inspections, Boiler Start of Availability Inspection (as applicable)	1	Ship/TYCOM/Naval Surface Warfare Center (NSWC)/ Industrial Activity	A-60 to A
26. Off-load ammunition and fuel as required (TYCOM approval required). Also off-load hazardous material and oily waste.	1	Ship	A-30 to A-1

MILESTONES	*CODE	RESPONSIBLE ACTIVITY	TIMELINE (Days)
27. AWP PAC (optional).	1	TYCOM/ ISIC/Ship/RSG	A-30
28. Issue Authorized AWP.	1	TYCOM	A-250 to A-140
29. Start availability, start ILO, start Combat System Technical Training.	1	Ship/Industrial Activity	A
30. Send start message to FLTCINC.	1	TYCOM	A
31. Arrival Conference.	1	Industrial Activity/ISIC/Ship	A to A+3
32. Cancel all outstanding CASREPs which are scheduled to be corrected during the industrial availability.	1	Ship	A to A+3
33. Execute MOA with Industrial Activity.	1	Ship/Industrial Activity	A to A+7
34. Submit Weekly Progress Reports.	1	Ship	A to C
35. 25 percent, 50 percent 75 percent point review conferences.	1	Ship/ TYCOM/Industrial Activity	A to C
36. Start crew training in preparation for Initial LOA.	1	Ship/ISIC	C-120
37. Start Combat System Level Testing.	1	Ship/Industrial Activity	C-90
38. Prepare Dock Trial, Fast Cruise, and Sea Trial agendas.	1	Ship	C-45
39. Post-Repair Boiler Inspection.	1	TYCOM/ Ship/NSWC	C-45
40. LOA.	1	Propulsion Examining Board/Ship	C-40
41. Start crew training in preparation for Sea Trials.	1	Ship	C-40
42. Send Sea Trials Discrepancy Report.	1	Ship	completion of Sea Trials
43. Visual National Policy for the Control of Compromising Emanations (TEMPEST) Inspection (with Configuration Control Diagram)	1	Industrial Activity	C-10

MILESTONES	*CODE	RESPONSIBLE ACTIVITY	TIMELINE (Days)
44. Completion Review Conference.	1	Industrial Activity/Ship/ TYCOM/ISIC	C-5
45. Complete Availability.	1	Industrial Activity/Ship	C
46. Send Completion Message to FLTCINC.	1	TYCOM	C
47. CSMP Update. Report completion of all SHIPALTs, Field Changes, Ordnance Alterations (ORDALTs).	1	Ship	C
48. Send letter report of any unsatisfactory work (photographs and later updates may also be sent).	1	Ship	C+10
49. Combat System Post-Overhaul Exam. (If required)	1	Ship/ISIC	C+15
50. End of guarantee period for work performed by Industrial Activity. All unsatisfactory work must be reported by this date to be corrected by industrial activity. Deficiencies discovered later should also be reported.	1	Ship	C+90
51. Complete SSR update.	1	Planning Yard	C+90
52. Issue Completed AWP.	1	TYCOM	C+180

NOTE: "A" AND "C" IN THE "TIMELINE" COLUMN REPRESENT THE START AND COMPLETION DATES, RESPECTIVELY. THE DATES SHOWN ARE FOR ILLUSTRATION ONLY, SINCE ACTUAL MILESTONES VARY DEPENDING ON SHIP OPERATING SCHEDULES, START DATE CHANGES, AND OTHER CONSIDERATIONS.

APPENDIX C

TYPICAL CNO AVAILABILITY PLANNING MILESTONES (AIRCRAFT CARRIERS ONLY)

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
1. Initial Modernization Planning Meeting	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-36
2. Fund Modernization Advance Planning	NAVSEA	A-34
3. Issue Modernization Advance Planning Tasking Letter	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-28/34
4. Issue Modernization Advance Planning Guidance	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-27/33
5. Identify Critical Modernization Material	Planning Yard	A-26
6. Fund Title "D" SHIPALT Advance Planning	TYCOM	A-24
7. Issue Contractor Support Tasking	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-24
8. Issue Advanced Repair Material List	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-23
9. Submit Ship's Alteration and Repair Status to NAVSEA	Planning Yard	A-22
10. Approve and Issue Ship's Alteration and Repair Status	NAVSEA	A-20
11. SHIPALT Brief for Department Heads	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-20
12. Initial Drawing Shipcheck	Planning Yard	A-20
13. Initial Drawing Shipcheck Brief	Planning Yard	A-20
14. Initial Maintenance Planning Meeting	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-20
15. Issue Maintenance Planning Tasking Letter	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-20

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
16. Mark Up 4720/3 for FMPMIS DataBase Update	Planning Yard	A-19
17. Review Long Range Maintenance Schedule	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-19
18. Drawdown Baseline AWP	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-18
19. Prepare Pre-Positioned Material List	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-18
20. Prepare Pre-Staged LLTM List	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-18
21. Conduct CSMP Validation	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-18
22. Issue Authorized Caps Plan	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-16
23. Issue Centrally Procured Material Status Report	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-15
24. Review Baseline Integrated AWP	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-15
25. Complete Title "K" SHIPALT Drawings	Planning Yard	A-14
26. Issue Industrial Electromagnetic Compatibility Message	NAVSEA	A-13
27. Issue Modernization Work Book	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-13
28. Issue Preliminary Integrated AWP Control Document	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-13
29. Issue Ships Force Work Package Introduction Letter	TYCOM	A-13
30. Issue SHIPALT Authorization Letter	NAVSEA	A-12

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
31. Issue Electromagnetic Interference Survey Tasking	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-12
32. Issue Preliminary Ships Force Work Package for Review	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-12
33. Review Preliminary Integrated AWP	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-11
34. Initial Ships Force Work Package Development Visit	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-11
35. Order from Advanced Repair Material List	Naval Support Activity	A-11
36. Task Industrial Activity to Support Ships Forces	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-11
37. Provide Ship Force with Training	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-10
38. Complete Title "D" SHIPALT Drawings	Planning Yard	A-10
39. Accomplish Industrial Electromagnetic Compatibility Pre-Availability Testing	Planning Yard	A-10
40. Ships Force Material Review	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-09
41. Authorize Ships Force Work Package Material	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-09
42. Order Ships Force Material	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-09
43. Review Integrated AWP and Ships Force Work Package	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-08
44. Complete Repair Package Estimating Shipcheck	Naval Support Activity	A-07
45. Order Ships Force Work Package Material	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-07

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
46. Conduct Pre-Availability MCA Survey	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-06
47. Issue Proposed Ships Force Work Package	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-05/06
48. Issue Proposed Integrated AWP Control Document	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-05/06
49. Review Proposed Integrated AWP	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-05/06
50. Conduct WDC	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-05
51. Conduct Ship's Force WDC	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-05
52. Issue Authorized Integrated AWP Control Document and Maintenance Planning Turnover Letter	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-05
53. WDC Fallout	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-04/05
54. Provide Ships Force Training	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-04
55. Ships Force Work Package Review	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-04
56. Ships Force Scheduling and Training Reports	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-04
57. Industrial Activity Provide Key Event Schedule	Naval Support Activity	A-04
58. Review Industrial Activity Scope Sheets and Preliminary Specifications	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-03
59. Complete Scheduling of Ships Force Work	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-02

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
60. Issue Fleet Integrated Logistics Support Book	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-02
61. Order Bulk Ships Force Material	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-02
62. Provide Ships Force with Organizational Training	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-02
63. Complete Bid Specification Review (Private Sector Only)	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-01
64. Ships Force Work Package Report Distribution	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-01
65. Ships Force Work Package Refresher Training and Monitoring	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	A-01
66. Conduct Post Availability MCA Survey	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	C+00
67. Ship's Force Work Package End of Availability Assessment	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	C+02
68. Issue Departure Report	Naval Support Activity	C+04
69. Issue Completion Integrated AWP Control Document	SUPSHIP NN, Code 1800 (CVNs only)/TYCOM (other Aircraft Carriers)	C+05

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APPENDIX D

SAMPLE TYCOM MESSAGE CONCERNING DSRS SUPPORT SERVICES FOR INDUSTRIAL ACTIVITY AVAILABILITIES OF LESS THAN SIX MONTHS DURATION (SUBMARINES ONLY)

FM COMSUBLANT NORFOLK VA//N31//
TO (SUPERVISING AUTHORITY)//(IF SUBSIG II USED)
(ISIC)//
USS ESCORT//(IF SUBSIG II NOT USED)7
INFO CNO WASHINGTON DC//21//23//
COMNAVSEASYSCOM WASHINGTON DC//(PLATFORM MANAGER)/08/SEA92//
CINCLANTFLT NORFOLK VA//N43/N33//
COMSUBPAC PEARL HARBOR HI//N31/N4/N40//
COMSECONDFLT//
COMNAVSURFLANT NORFOLK VA//N31/N4//
COMNAVAIRLANT NORFOLK VA//N31//
(SUPERVISING AUTHORITY)//
CTF TWO SIX//
CTG TWO SIX PT ONE//
NSCSES NORFOLK VA//112//
COMSUBDEVRON FIVE SAN DIEGO CA//N31//
DSU SAN DIEGO CA//00//
NAVUNSEAWARCENDIV NEWPORT RI//02245//
NAVUNSEAWARCENDET WEST PALM BEACH FL//3812//
NAVUNSEAWARCENDET AUTEC ANDROS ISLAND BAHAMAS//05//
DIRSSP WASHINGTON DC//SPOO/SP201//(FOR SSBN)
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//1921//
PEOSUBCBTWPNSYS WASHINGTON DC//PMO417//
NAVORDTESTU CAPE CANAVERAL FL//SPP40//(FOR SSBN)
COMSUBGRU TEN (FOR SSBN)//N3//
COMSUBRON /(STRL UNIT)//
STRL UNIT//
BT
UNCLAS //N03120//
MSGID/GENADMIN/COMSUBLANT//
SUBJ/(SUBS) SUBMARINE SEA TRIAL SUPPORT SERVICES//
REF/A/RMG/(SUPERVISING AUTHORITY)/191630Z MAR 92/NOTAL//
REF/B/LTR/CNO LTR SER 02-7U/385070 OF 24 AUG 87/NOTAL//
REF/C/DOC/CINCLANTFLT/CINCPACFLT (Date)//
REF/D/TEL/COMSUBLANT/23 MAR 92//(CONFIRMING STRL SCHEDULE)
NARR/REF A IS SEA TRIAL SUPPORT REQUEST/REF B IS SUBJ SEA TRIALS/REF C IS JOINT FLEET MAINTENANCE MANUAL/REF D IS TELCON BTWN CSL N312A AND (SUPERVISING AUTHORITY) (SUBSIG II)//
RMKS/1. AS REQUESTED REF A AND IAW REFS B AND C SUBSIG II IS APPROVED AS ESCORT FOR STRL UNIT SEA TRIALS OCCURRING DD-DDMMM. THIS CONFIRMS REF D.
2. FOR (ISIC): PROVIDE GOLD DOLPHIN RIDER ONBOARD SUBSIG II.
3. DIRLAUTH ALCON FOR EVENT SCHEDULES AND SCHEDULE CHANGES.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS UTILIZED.

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APPENDIX E

SAMPLE DSRS SUPPORT SERVICES MESSAGE FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS DURATION (SUBMARINES ONLY)

FM COMSUBLANT NORFOLK VA//N31//
TO COMSUBDEVRON FIVE SAN DIEGO CA//N31//
SUPSHIP GROTON CT//153/154/155//(IF SUBSIG II USED)
COMSUB SQD/GRP (ISIC)//
USS \MOSUB//
USS \ESCORT (IF SUBSIG II NOT USED)//
INFO CNO WASHINGTON DC//N871/N872//
COMNAVSEASYSCOM WASHINGTON DC//PMS392/PMS350/PMS417/08/SEA92//
CINCLANTFLT NORFOLK VA//N43/N33//
COMSUBPAC PEARL HARBOR HI//N31/N4/N40//
COMSECONDFLT//
COMNAVSURFLANT NORFOLK VA//N31/N4//
COMNAVAIRLANT NORFOLK VA//N31//
SUPERVISING AUTHORITY//
CTF TWO SIX//
CTG TWO SIX PT ONE//
NSCSES NORFOLK VA//112//
DSU SAN DIEGO CA//00//
NAVUNSEAWARCEN NEWPORT RI//02245//
NAVUNSEAWARCENDET WEST PALM BEACH FL//3812//
NAVUNSEAWARCENDET AUTEC ISLAND BAHAMAS//05//
DIRSSP WASHINGTON DC//SP00/SP201//(FOR SSBN'S)
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//1921//
PEOSUBCBTWPNSYS WASHINGTON DC//PM0417//
NAVORDTESTU CAPE CANAVERAL FL//SPP40//(FOR SSBN'S)
COMSUBGRU TEN//(FOR SSBN'S)
COMSUBRON/(STRL UNIT)//
COMSUBRON/(MOSUB)//
STRL UNIT//
BT
UNCLAS //N03120//
MSGID/GENADMIN/COMSUBLANT//
SUBJ/(SUBS) SUBMARINE SEA TRIAL SUPPORT SERVICES//
REF/A/RMG/SUPERVISING AUTHORITY/191630Z MAR 92/NOTAL//
REF/B/LTR/CNO LTR SER 02-7U/385070 OF 24 AUG 87 NOTAL//
REF/C/LTR/NAVSEA LTR SER 3930/C 246/17 NOV 89/NOTAL//
REF/D/DOC/CINCLANTFLT/CINCPACFLTINST (Date)//

REF/E/TEL/COMSUBLANT/DD MM YY//(CONFIRMING STRL SCHEDULE)//
NARR/REF A IS SEA TRIAL SUPPORT REQUEST/REF B IS SUBJ SEA TRIALS/REF C IS NAVSEA LTR TO CNO DESCRIBING GMV VS MOSUB CAPABILITY/REF D IS JOINT FLEET MAINTENANCE MANUAL/REF E IS TELCON BETWEEN CLS N312, AND RESPONSIBLE INDUSTRIAL ACTIVITY OR SUPSHIP GROTON CT (SUBSIG II)//
RMKS/1. IRT REF A AND IAW REF B THROUGH D, THE FOLLOWING ASSIGNMENTS APPLY FOR STRL UNIT (SSN-***) SEA TRIALS OCCURRING PD: DD-DDMMM (ALPHA 100% TD).

A. DSRV SUPPORT SHIP - USS \MOSUB (SSN XXX)
B. RESCUE PORT -
C. RESCUE PORT REPRESENTATIVE -
D. RESCUE AIRFIELD -

2. FOR CNO, UNODIR, INTEND TO IMPLEMENT REF C RECOMMENDATIONS TO COMPENSATE FOR LOW (LESS THAN 1.0 FT) TRANSVERSE METACENTRIC HEIGHT (GM) CONDITION WITH DSRV INSTALLED ON MOSUB.
3. FOR \COMSUBGRU TWO / USS \MOSUB: TO CORRECT CONDITION OF PARA 2, ACCOMPLISH FOLLOWING ONLY IF ACTUAL RESCUE OPS WITH DSRV REQUIRED:

A. OFFLOAD TORPEDOES AS REQUIRED BY REF C (REMAINING TORPEDOES MAY BE TUBE LOADED OR STOWED IN LOWER RACKS)
B. REDUCE STORES AS REQUIRED BY REF C, APPROXIMATELY:
-DRY--****** LBS (LOWER AND MIDDLE LEVEL)
-FROZEN--***** LBS
-CHILL--***** LBS
C. CONVERT AUX 2 TO VARIABLE BALLAST TANK AND PRESS FULL WITH WATER (FRESH WATER IS ACCEPTABLE). RETAIN STORED CONTENTS OF AUX TWO ON BOARD, SECURED LOW IN TORPEDO ROOM. USS \MOSUB VERIFY ABILITY TO COMPLY WITH SUBPARA C AND REPORT RESULTS TO COMSUBLANT INFO \COMSUBGRU/RON (ISIC).

4. AS REQUESTED REF A AND IAW REF D SUBSIG II IS APPROVED AS ESCORT FOR \STRL UNIT SEA TRIALS OCCURRING DD-DDMMM. THIS CONFIRMS REF E.
5. FOR \COMSUBGRU/RON (ISIC), PROVIDE GOLD DOLPHIN RIDER ONBOARD SUBSIG II.
6. FOR \STRL UNIT, INCLUDE THE FOLLOWING INFO ADDEES ON FINAL TEST DEPTH DEEP DIVE CHECK REPORT: COMSUBPAC PEARL HARBOR HI, COMSUBDEVRON FIVE SAN DIEGO CA, AND DSU SAN DIEGO CA.
7. DIRLAUTH ALCON FOR EVENT SCHEDULES AND SCHEDULE CHANGES.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX F

SUGGESTED GUIDELINES FOR FORCES AFLOAT REVIEW OF AVAILABILITY WORK PACKAGES

a. The preliminary AWP includes information which SUBMEPP(Submarines only)/SUPSHIP NN, Code 1800 (Nuclear Powered Aircraft Carriers only)/applicable TYCOM (other Surface Ships)/Maintenance Manager extracts from the CSMP 21 to 24 months prior to the availability. SUBMEPP/ SUPSHIP NN, Code 1800 TYCOM (as applicable) and Maintenance Manager only reviews items in the CSMP which are coded 1 under the type availability column. SUBMEPP/SUPSHIP NN, Code 1800/TYCOM (as applicable) and Maintenance Manager continues to monitor the CSMP until submission of the first Supplementary Work List. It is essential that the CSMP be up-to-date and reflect what work the ship requires the industrial activity to accomplish. The CSMP is the primary means of communicating unique work items not already covered by the AWP until submission of the first Supplementary Work List.

b. Ship's Force should review each maintenance item on the CSMP deferred for accomplishment to ensure that the deficiency reported and the work involved to correct it are complete and accurate.

c. To the maximum extent possible, work items that are within the capability of an FMA to accomplish should be accomplished as T/A-2 work prior to the CNO Maintenance Availability.

d. Ship's Force will identify CSMP repair items previously deferred for other than industrial activity action which Forces Afloat will not likely accomplish prior to the availability and change the type availability code to T/A-1, with ISIC concurrence, on these items.

e. Ship's Force will review each outstanding alteration for applicability and ensure that the record of completed alterations is correct. Alterations erroneously reported complete result in plans and tests which do not fit the ship. Completed alterations not reported as complete will cause unnecessary expenditure of shipcheck funds and/or duplication of effort during the availability.

f. During AWP review meetings, Ship's Force should mark up both the index and applicable Ships Work List Item Number (SWLIN) as an aid in recalling information. Appropriate corrections to the TAMS and FMPMIS should be made as early as possible via normal channels.

g. Ship's Force will review the AWP to see if any component/equipment requiring attention of any kind has been omitted. Note that the Advanced Equipment Repair Program and TRIDENT Planned Equipment Replacement (TRIPER) Program (SSBN-726 Class). SEAWOLF Rotatable Pool Program and Aircraft Carrier Planned Equipment Replacement (CASREP) Program replace many components with refurbished units. Repair work on components that will be replaced by Advanced Equipment Repair Program can be canceled or noted as covered by the replacement SWLIN.

h. On receipt of the Proposed AWP, Ship's Force should review each Ship System Work Description. Ship's Force should prepare comments as to whether the extent of planned restoration, maintenance or repairs is sufficient or excessive. Additional comments regarding abnormal operation or configuration will be of interest to the industrial activity even if the AWP covers the particular component for repair because the scope of the job can be exactly defined early, avoiding "growth within scope" and schedule slippage later in the availability.

i. Ship's Force should review the General Information Section, "zero" series SWLINs and the glossary for a definition of terms used in the AWP to obtain a general understanding of availability procedures, philosophy and the pre-availability planning requirements.

j. Ship's Force should review all outstanding Departures from Specification to ensure they identify, for correction during the availability, all known non-standard repairs or installations not in accordance with class plans.

k. Ship's Force should identify any recently completed repair actions on components assigned to industrial activities and alterations that may negate the need for, or reduce the extent of, industrial activity refurbishment.

l. Ship's Force should identify any equipment not presently addressed in the AWP. SUBMEPP/SUPSHIP NN, Code 1800/TYCOM (as applicable) and Maintenance Manager are interested in identifying special or temporary equipment installations which may need maintenance during the availability.

m. Ship's Force should identify any equipment listed for restoration, that is in exceptionally good material condition.

n. Ship's Force should review, "Forces Afloat Actions to be Accomplished Prior To or At Arrival" index in the AWP to ensure these actions are understood.

APPENDIX G

MONITORING PROCEDURES (SURFACE SHIPS ONLY)

1.1 Periodic Monitoring.

a. Purpose. To provide to ships in availability such administrative and training assistance as is necessary to improve the Ship's Force conduct of the overhaul, maintenance and training tasks. Visits of this nature are termed Tech Assists.

b. To evaluate the effectiveness of administration and training. Visits of this nature are termed Work-Ups.

c. To conduct spot checks to monitor progress in specific material, administrative and training areas. Visits of this nature are termed Monitor Visits.

d. The extent, type and frequency of periodic monitoring and visits should be determined on a case basis by the responsible ISIC or TYCOM Representative. The initial inspection should be broad in scope in order to apprise the responsible ISIC of the adequacy of the ship's performance and progress. Normally, the initial visit will indicate the necessary frequency and scope of subsequent Tech Assists and Monitor Visits. In general, any required Work-Ups should be scheduled in advance of key events during the availability.

e. Examine the effectiveness of Ship's Force preparations for overhaul during initial inspections. Subsequent visits should review the following areas as appropriate for the purpose of the specific inspection.

(1) Review procedures and administrative steps for provisional watch station qualifications.

(2) Review department organization manuals.

(3) Review department instructions and administrative procedures.

(4) Review ship's instructions and administrative procedures.

(5) Review department logs, operating instructions and casualty procedures.

(6) Review ship's standard operating procedures and the ship's organization and regulations manual.

(7) Review training conducted and planned to support the goal of requalifying or reestablishing proficiency of watchstanders.

(8) Monitor performance of watchstanding.

(9) Conduct spot check of ship's records and logs in use.

(10) Review Ship's Force controlled work (Level I and Nuclear) and procedures to ensure proper controls and documentation are in accordance with Volume V, Part I, Chapter 2 of this manual.

(11) Review status of Ship's Force responsible PMS/IEM.

(12) Inspect installed equipment for cleanliness and adequate protection from damage.

(13) Review Tagout and Work Authorization Logs. Spot check for compliance in accordance with current directives.

(14) Inspect ship for hazards.

(15) Inspect provisions for casualty control including watertight integrity.

(16) Verify that all COSAL material including operating space items, have been off-loaded to processing areas which provide appropriate security.

(17) Inspect the processing area to verify provisions and procedures for careful ILO inventory.

(18) Review response of supply system to requisitions in support of Ship's Force work.

(19) Verify that items are withdrawn from the ship's COSAL stock undergoing inventory/ILO only on an emergency basis and that such issues are well documented with appropriate adjustments to the inventory records.

(20) Evaluate general safety practices.

f. Scheduling of Periodic Monitoring Visits. Periodic Monitoring Visits should be scheduled by the responsible ISIC/TYCOM as appropriate. Some monitoring visits should be conducted on an unannounced basis. These visits should be given so as to minimize interference with industrial activity and Ship's Force work.

g. Reports of Visits. Formal reports of the results of periodic monitoring visits are not required by the TYCOM. However, the responsible ISIC should advise the TYCOM in situations when the attainment of required progress toward completion of Key Events is in jeopardy.

APPENDIX H

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING CREW CERTIFICATION (SUBMARINES ONLY)

FM ISIC//
TO TYCOM//N43/40/402//
INFO SUPERVISING AUTHORITY//CODES//
USS (SHIP NAME)//
COMSUBGRU NO.//N4//
COMNAVSEASYSCOM//PMS 392/08//
BT
UNCLAS //N09094//
MSGID/GENADMIN/(ISIC)//
SUBJ/(SUBS) USS (SHIP NAME/HULL NO.) CREW/MATL CERTIFICATION//
REF/A/DOC/CINCLANTFLT/CINCPACFLTINST 4790.3//
REF/B/DOC/NAVSEA 0924-LP-062-0010//
NARR/REF A IS JOINT FLEET MAINTENANCE MANUAL/REF B IS SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL//
RMKS/1. CREW CERTIFICATION CONDUCTED IAW REF A SATISFACTORILY COMPLETED.
2. IAW REFS A AND B, ALL WORK ACCOMPLISHED BY FORCES AFLOAT WITHIN SUBSAFE CERTIFICATION BOUNDARY COMPLETED AND SATISFACTORILY RETESTED. ALL OTHER CONTROLLED WORK PERFORMED BY SHIP'S FORCE HAS BEEN COMPLETED AND SATISFACTORILY RETESTED AND THE APPROPRIATE WORK PACKAGES CLOSED. CERTIFICATION REQUIREMENTS OF REF A HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY.
3. MATERIAL/SALVAGE CONDITION CERTIFIED READY FOR SEA UPON COMPLETION OF THE FOLLOWING CORRECTIVE ACTIONS:
A.
B.
4. THERE ARE NO OUTSTANDING REC'S. THE FOLLOWING DEPARTURES FROM SPECIFICATION ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

5. ALL I LEVEL IMMPs AND URO MRC MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF B HAVE BEEN SUCCESSFULLY ACCOMPLISHED WITHIN THE REQUIRED PERIODICITY.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX I

SITREP/PROGRESS REPORT

FM USS (SHIP NAME)//
TO (APPLICABLE TYCOM)//N43//
INFO (APPLICABLE FLTCINC)//N43//
COMNAVSEASYSCOM//**04X/04X1/04X2/08**/071/911/931/PMS312/ (AS APPLICABLE)//
COMNAVAIRSYSCOM (AS APPLICABLE)//
ISIC (IF APPLICABLE)//
SUPERVISING AUTHORITY//
SUPSHIP NN, CODE 1800 (AS APPLICABLE)//
Local RSG (IF APPLICABLE)//RO//
FMA//
(OTHER UNITS IN AREA IF APPLICABLE)//
(OTHER UNITS OF CLASS OF APPLICABLE)//
BT
UNCLAS //N04790//
MSGID/GENADMIN/USS _____//
SUBJ/(TYPE AVAILABILITY) SITREP (SEQUENTIAL NUMBER)//
REF/A/DOC/CINCLANTFLT/CINCPACFLT/(DATE)//
AMPN/REF A IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOL II//
RMKS/1. THE FOLLOWING PROGRESS REPORT IS SUBMITTED IAW REF A. CO'S SUMMARY:
A.
B.
C.
2. CRITICAL PATH WORK, INDUST, FMA, AND OTHER AREAS OF CONCERN:
A.
B.
C.
3. STATUS OF PLANNING
A.
B.
C.
4. STATUS OF WORK

A.	INDUSTRIAL ACT	FOR WEEK	FOR AVAILABILITY
	PLANNED	(MAN-DAYS)	
	EXPENDED	(MAN-DAYS	
B.	FMA		
	ASSIGNED JOBS	N/A	( )
	SCHEDULED COMPL	(#)	( )
	ACTUAL COMPL	(#)	( )
C.	SHIP'S FORCE		
	SCHEDULED	(MAN-DAYS)	( )
	EXPENDED	(MAN-DAYS)	( )

5. PROGRESS

A.	AVAILABILITY TIME EXP(%)	INDUST ACT PROGRESS(%)	FMA PROGRESS(%)	SHIP'S FORCE (PROGRESS(%)
	(45)	(45)	(20)	(95)

6. STATUS OF TESTING
   A. INDUSTRIAL ACTIVITY
      TOTAL TESTS AUTHORIZED ( )
      TESTS STARTED ( )
      TESTS COML ( )
      TESTS CANCELLED ( )

   B. FMA
      TESTS SCHED TO START (100)
      TESTS STARTED ( )
      TESTS SCHED TO COMPL ( )
      TESTS COMPL ( )

7. STATUS OF KEY EVENTS

	ORIG SCHED	REV DATE	ACT COMP
COMMENCE AVAIL	2/1	2/11	2/12
DRY-DOCKING (IF APPLICABLE)	2/1	2/11	3/20
ELEX REMOVALS COMP	4/11		
UNDOCK		6/2	
SPACE TURNOVER			
#1MMR	6/23		
#2MMR	7/1		
LOA		7/20	
CREW CERT			
COMPLETE AVAIL	9/15		

(THIS IS NOT AN ALL INCLUSIVE LISTING. SUPERVISING AUTHORITY WILL ISSUE THEIR LIST OF KEY EVENTS)

8. STATUS OF SELECTED RECORDS. (SHORT NARRATIVE HIGHLIGHTING ANY PROBLEM AREAS).
9. SUPERVISING AUTHORITY COMMENTS.//

BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX J

SAMPLE NEW WORK FORWARDING LETTER AND INDEX

From: Commanding Officer, USS (Ship Name and Hull No.)
To: (TYCOM)
Via: (ISIC) (See Note 1)

Subj: NEW WORK AUTHORIZATION REQUEST NO. (1) (See Note 2)

Ref: (a) CINCLANTFLT/CINCPACFLTINST 4790.3, Joint Fleet Maintenance Manual

Encl: (1) Index of New Work Requests (See page II-H3-2)
(2) Supplementary Work Requests (IPN 002-064) (See Notes 3 and 4)

1. Enclosures (1) and (2) are submitted in accordance with reference (e) as the (first) supplementary work request (See Note 2).

Commanding Officer

Copy to:
SUBMEPP (Submarines only)/SUPSHIP NN, Code 1800 (CVNs only)
ISIC (See Note 1)
Supervising Authority (See Note 5)

NOTES: 1. SUBMIT VIA ISIC BEFORE AVAILABILITY START, SUBMIT DIRECTLY TO TYCOM AFTER AVAILABILITY START. PROVIDE COPY TO ADMINISTRATIVE COMMANDER (GROUP/SQUADRON) AFTER AVAILABILITY START.

2. SUPPLEMENTARY WORK LISTS ARE NUMBERED CONSECUTIVELY THROUGH AVAILABILITY COMPLETION.

3. ONLY THE ORIGINAL OPNAV 2K (AND 2L IF REQUIRED) SHALL BE ATTACHED TO THE INDEX. MULTIPLE COPIES ARE NOT REQUIRED.

4. THE FIRST SUPPLEMENTAL IS INTEGRATED PRIORITY NUMBER (IPN)-002. AWP IS CONSIDERED IPN-001. IPNS SHALL BE SEQUENTIALLY NUMBERED AND RECORDED ON INDEX FROM FINAL SUBMISSION TO AVAILABILITY COMPLETION.

5. COPY TO SUPERVISING AUTHORITY OFFICE.

USS_____ (Hull No.) Index of New Work Requests

IPN	PRI	JSN From CSMP	Brief Title	ISIC Comment	TYCOM Action	Remarks
(Ex) 002	03	EA01-5493	VH-5 hard to operate		Assign to Industrial Activity	Authorized for Industrial Activity
NUMBERED SEQUENTIALLY						

See Note 4

APPENDIX K

SUGGESTED MESSAGE FORMAT FOR A NEW WORK CANDIDATE

FROM USS (SHIP NAME)
TO (APPLICABLE TYCOM)
INFO (APPLICABLE INDUSTRIAL ACTIVITY/SUPERVISING AUTHORITY)
(ISIC, IF APPLICABLE)
(SUBMEPP/SUPSHIP NN, CODE 1800, AS APPLICABLE)
BT
UNCLAS//N04700
MSGID/GENADMIN/(SHIP NAME)//
SUBJ/NEW WORK REQUEST NR. (000)//
RMKS/1. REQ AUTH TO ACCOMPLISH FOLLOWING REPAIRS:
A. CATEGORY OF REPAIR (BASED ON 1 THRU 5 BELOW).
(1) (WORK THAT MUST BE PERFORMED WHILE IN DRY DOCK)
(2) (WORK THAT WILL RESULT IN A C-3 OR C-4 CASREP IF DEFERRED)
(3) (WORK REQUIRING EXTENSIVE INTERFERENCE/REMOVALS AND WHICH HAVE ALREADY BEEN MADE INCIDENT TO OTHER AUTHORIZED WORK)
(4) (WORK THAT WILL RESULT IN A C-2 CASREP IF DEFERRED)
(5) (ALL OTHER WORK)
B. DESCRIPTION OF REPAIRS REQUESTED:
(1) EQUIPMENT/SYSTEM
(2) REPAIRS REQUESTED
(3) EIC
(4) JCN
(5) REPAIR BEYOND SF/FMA CAPABILITIES: (EXPLAIN IF NOT OBVIOUS)
2. MISSION CAPABILITY DEGRADED: (EXPLAIN)
3. ADDITIONAL INFORMATION AS NECESSARY.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX L

MINIMUM DOCK TRIALS REQUIREMENTS (SURFACE SHIPS ONLY)

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
1. Check all Telephone, Announcing and Interior Communications circuits between all stations.	X	X
2. Test all alarms, i.e. General Quarters, Collision, etc.	X	X
3. Check all operational status readout interior communications circuits.	X	X
4. Test whistle.	X	X
5. Check adequacy of interior lighting and emergency lighting.	X	X
6. Operate all hydraulic systems using each installed pump.	X	X
7. Test operation of all radio transmitters and receivers using all antennas.	X	X
8. Operate all radar equipment.	X	X
9. Operate all sonar equipment.	X	X
10. Take and plot fixes using all navigation equipment and each antenna.	X	X
11. Test operation of trim/ballast control/list control system and pump (from all operating locations) in accordance with local instructions.	X	X
12. Test operation of portable submersible pump from each installed outlet.	X	X
13. Test engine order telegraphs.	X	X
14. Test magazine/pyro flooding systems.	X	X
15. Operate each lube oil system, including pumps, controllers, purifiers and indicators.	X	X

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
16. Start Ship's Inertial Navigation System (SINS)/Electrically Suspended Gyro Navigation (ESGN) and gyrocompass; determine that they settle out; take azimuth; check all repeaters.	X	X
17. Check potable water system, have water samples analyzed.	X	X
18. Test capstans and winches.	X	X
19. Operate steering system in all modes. Test normal and emergency rudder angle indicators.	X	X
20. Remove all brows.	X	X
21. Test Automatic Bus Transfer devices.	X	X
22. Operate each watertight door and hatch.	X	X
23. Check operation of escape hatches/scuttle fittings.	X	X
24. Check navigation/running lights for brightness and proper lenses (to be done at night). Includes Flight Deck lighting. (if applicable)	X	X
25. Check air conditioning, chill water, ventilation, and heating systems.	X	X
26. Test underwater log and dummy log if water depth permits.	X	X
27. Check operation of all 400 cycle generating equipment.	X	X
28. Check all galley, messing, and ship's service equipment.	X	X
29. Check fathometer.	X	X
30. Check that mooring lines are doubled and taut and that camels are secured to the pier not the ship.	X	X
31. Check bilge flooding alarm.	X	X
32. Check all High Pressure and Low Pressure air systems/components.	X	X
33. Operate distilling units.	X	X
34. Check anchor windlass and brake operation.	X	X

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
35. Check atmosphere monitoring equipment, both installed and portable.	X	
36. If possible, operate Secondary Propulsion Motor(s) (SPM), auxiliary propulsion units and thrusters.		X
37. Operate the emergency diesel generator(s).	X	X
38. Engage and disengage propulsion shaft clutch(es).	X	X
39. Test Main Engines; Nuclear Powered ships jack main engines.	X	X
40. Check all TV monitoring systems.	X	X
41. Check Special Aircraft Service Stores upper and lower trolley cars.	X	X
42. Check small arms lockers and security devices.	X	X
43. Operate all Identification Friend or Foe (IFF) Equipment.	X	X
44. Check degaussing equipment.	X	X
45. Check hangar bay doors.	X	X
46. Inventory and check all damage control equipment.	X	X
47. Inspect and operate oxygen and nitrogen systems.	X	
48. Check out all Tank Level Indicating systems.	X	X
49. Check out Flight Deck communications. (if applicable)	X	X
50. Check meteorological equipment.	X	X
51. Check graphics preparation/display equipment.	X	X
52. Check weapon systems. Check to include loading of dummy missile at each launch station, transmission of fire control signals and operation of launchers in all modes.	X	X
53. Operate all electrical/mechanical medical equipment.	X	X
54. Inspect all compartments for proper stowage and cleanliness and operability of equipment.	X	X

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
55. Test operation of all data processing equipment.	X	X
56. Test and inspect jet blast deflectors.	X	X
57. Test and inspect JP-5 fuel systems.	X	X
58. Test and inspect all aircraft starting, handling and launching equipment including catapults.	X	X
59. Test and inspect aircraft landing equipment including land signal officer equipment, arresting gear, barricades, as applicable.	X	X
60. Operate all Refueling at Sea equipment.	X	X
61. Check bridge window wiper system.	X	X
62. Operate all accommodation ladders.	X	X
63. Operate all conveyors.	X	X
64. Launch and raise motor whaleboat.	X	X
65. Operate all Boats.	X	X
66. Test and inspect Lifeboat/Life Raft stowage and launch equipment.	X	X
67. Test and inspect all elevators in all modes of operation.	X	X
68. Test and inspect all fire fighting systems.	X	X
69. Test and inspect refrigeration system.	X	X
70. Test and inspect all sea water cooling systems.	X	X
71. Operate stern gate doors.		X
72. Operate cranes.	X	X
73. Operate all ship’s service generators.	X	X
74. Check all photographic processing and recording equipment.	X	X

APPENDIX M

SAMPLE SHIP'S REQUEST FOR PERMISSION TO COMMENCE FAST CRUISE (SURFACE SHIPS ONLY)

FM USS (SHIP NAME)//
TO(APPLICABLE TYCOM)/N43//
INFO CNO WASHINGTON DC//OP55//N86 OR N88//
SUPERVISING AUTHORITY//
COMNAVSEASYSCOM WASHINGTON DC//PMS312/**04X/04X1/04X2/08/91T** (AS APPLICABLE)//
COMCARGRU (GROUP NO.)//
OTHER UNITS (IF APPLICABLE)//
BT
UNCLAS //N09080//
MSGID/GENADMIN/(ORIG)//
SUBJ/(SHIP NAME AND HULL NO.) FAST CRUISE//
REF/A///
AMPN/REF A IS //
RMKS/1. ALL FORCES AFLOAT WORK ITEMS AND TRAINING NECESSARY FOR SEA TRIALS INCLUDING THOSE DEFICIENCIES LIST REF A HAVE BEEN SATISFACTORILY COMPLETED.
2. USS _____ READY FOR SEA WITH EXCEPTION OF REMOVING SHORE SERVICES. ALL REQUIRED STORES AND SPARE PARTS ON BOARD.
TECHNICAL DOCUMENTATION ON BOARD.
A.
B.
C.
D.
3. REQUEST PERMISSION TO COMMENCE FAST CRUISE//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX N

MINIMUM FAST CRUISE REQUIREMENTS (SURFACE SHIPS ONLY)

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
1. Make all preparations for getting underway.	X	X
2. Station the maneuvering watch/sea and anchor detail.	X	X
3. Station the normal underway watch (section watches).	X	X
4. Simulate getting underway and return to port. (Day and Night)	X	X
5. Walk through all major Sea Trial evolutions.	X	X
6. Exercise the reduced visibility detail.	X	X
7. Spot check storage and availability of spare parts and tools. Verify adequacy of stores and provisions.	X	X
8. Conduct the following emergency drills:		
a. Fire	X	X
b. Collision	X	X
c. Flooding	X	X
d. Abandon Ship	X	X
e. Man Overboard	X	X
f. Loss of AC Power	X	X
g. Loss of Air Conditioning/ACW	X	X
h. Loss of Lighting	X	X
i. Loss of Interior Communications	X	X
j. Steering Casualty	X	X
k. Engine Casualty Control	X	X
9. Set General Quarters. Exercise the crew at battle stations.	X	X
10. Conduct communication and Electronic Counter Measures (ECM) drills.	X	X
11. Anchor (walk-through).	X	X

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
12. Exercise damage control party with emergency and damage control equipment during conduct of item 12.	X	X
13. Perform the minimum Fast Cruise requirements for nuclear propulsion plants contained in reference (r).	X	
14. Operate air conditioning plants to demonstrate ability to carry the maximum existing ships air conditioning load or 100% capacity.	X	X
15. Operate fresh water/seawater heat exchangers at sufficient load to demonstrate proper operation.	X	X
16. Simulate underway conditions, performing all evolutions and operating equipment normally.	X	X
17. Simulate boat transfer at sea.	X	X
18. Conduct competitive and non-competitive drills and exercises such as aircraft tracking, and aircraft control.	X	X
19. Man Towing/Salvage/Fueling Stations.	X	X
20. Set Flight Quarters as applicable.	X	X
21. Check all interior communications circuits.	X	X

APPENDIX O

SAMPLE SHIP'S REPORT OF FAST CRUISE COMPLETION (SURFACE SHIPS ONLY)

FM USS (SHIP NAME)//
TO (APPLICABLE TYCOM)//N43//
INFO CNO WASHINGTON DC//OP55//N6 OR N8//
COMNAVSEASYSCOM WASHINGTON DC//PMS312/**04X/04X1/04X2/08/92T/(AS APPLICABLE)**//
SUPERVISING AUTHORITY//
(APPLICABLE FLTCINC)//N43//
COMCARGRU (GROUP NO.)//
BT
UNCLAS //N09080//
MSGID/GENADMIN/(orig)//
SUBJ/(SHIP NAME AND HULL NO.) FAST CRUISE//
REF/A/RMG/(orig)/(dtg)//
REF/B/DOC/CINCLANTFLT/CINCPACFLT/(DATE)//
NARR/REF A IS TYCOM MSG AUTHORIZING COMMENCEMENT OF FAST CRUISE. REF B IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOL II. //
RMKS/1. FAST CRUISE AUTHORIZED BY REF A COMPLETED AT (DATE/TIME). NO MAJOR DEFICIENCIES NOTED IN CREW OR EQUIPMENT. REQUEST PERMISSION TO COMMENCE SEA TRIAL IN ACCORDANCE WITH REF B AT (DATE/TIME).//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX P

MINIMUM TESTS TO BE PERFORMED DURING SEA TRIALS (SURFACE SHIPS ONLY)

1. PHASE I - PRIOR TO GETTING UNDERWAY

   a. Zero set EM log

   b. Settle SINS and gyro compass

   c. Operate fire pumps in all modes (See Note 1)

   d. Fuel Ship (as required)

   e. Ballast ship for zero trim and list

   f. Megger all antennae

   g. Conduct steering checks (See Note 1)

   h. Test magazine flooding system

   i. Set special sea and anchor detail

2. PHASE II - UNDERWAY ENGINEERING AND OTHER MAJOR SYSTEM TESTS

   a. Calibrate EM log

   b. Commence SINS Calibration

   c. Light off distilling plants and conduct 24 hour capacity test

   d. Test fathometer

   e. Test CMWD system

   f. Test navigation radar comparing fixes with visual fixes

   g. Test Electronic Warfare Support Measures (ESM) and IFF

   h. Demonstrate Radio Direction Finder

   i. Conduct Infrared checks

   j. Test fire fighting systems, to include Flight Deck (if applicable)

   k. Conduct full power run terminating in an emergency stop

   l. Test boiler support systems (if applicable)

   m. Test aircraft support systems (if applicable)

n. Test rudder in all modes ahead and astern progressing to full throw test while at full power

o. Hydro JP-5 system as required (if applicable)

p. Warm up catapults and shoot no loads (if applicable)

q. Operate emergency diesel generators carrying ships load (See Note 1)

r. Run in shaft seals shifting to forward and after seals

s. Test all Aircraft Control and Tracking functions

t. Conduct Close-in Weapons System tracking

u. Conduct Sonar Alignment checks (if applicable)

w. Test air conditioning, ventilation, and refrigeration systems (See Note 1)

x. Demonstrate Air Masker operation (if applicable)

y. Demonstrate Darken Ship

z. Anchor in 60 fathoms of water and test anchor

aa. Conduct additional tests as required by ship's CO

3. PHASE III - AIRCRAFT OPERATIONS (IF APPLICABLE)

a. Rendezvous with escort ships

b. Land one of each type of aircraft carried in air group on Sea Trials as part of ALCS certification

c. Launch all aircraft landed

4. PHASE IV - RETURN TO INDUSTRIAL ACTIVITY

a. Anchor in 60 fathoms of water and test anchor

b. Rig out, launch and recover small boats

c. Receive replenishment ship along side and conduct light and high line drills from all stations

NOTE: IF TESTS ON THESE SYSTEMS WERE PERFORMED BY THE INDUSTRIAL ACTIVITY WITHIN 4 MONTHS OF SEA TRIALS AND THE TEST RESULTS WERE SATISFACTORY, THIS ITEM MAY BE OMITTED.

APPENDIX Q

SAMPLE SUPERVISING AUTHORITY READINESS FOR SEA TRIAL MESSAGE (SURFACE SHIPS ONLY)

FM (SUPERVISING AUTHORITY)//
TO USS (SHIP'S NAME)//
INFO CNO WASHINGTON DC//OP66//N86 OR N88//
COMNAVSEASYSCOM WASHINGTON DC//(APPLICABLE CODES)//
(APPLICABLE FLTCINC)//N43//
(APPLICABLE TYCOM)//N43//
(ISIC)//
BT
UNCLAS //N09080//
MSGID/GENADMIN/(SUPERVISING AUTHORITY NAME)//
SUBJ/USS (SHIP NAME AND HULL NO.) READINESS FOR SEA TRIALS//
REF/A/DOC/CINCLANTFLT/CINCPACFLT (DATE)//
AMPN/REF A IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II//
RMKS/1. IAW REF A (SUPERVISING AUTHORITY) REPORTS THAT ALL WORK NECESSARY FOR SEA TRIALS, HAVE BEEN SATISFACTORILY COMPLETED.
2. SEA TRIALS TO COMMENCE AT (TIME AND DATE) CONTINGENT UPON (APPLICABLE TYCOM) APPROVAL//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX R

MAJOR TRIAL AND INSPECTION MILESTONES FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS DURATION (SUBMARINES ONLY)

EVENT	DETERMINATION AUTHORITY	ACCOMPLISHMENT DATE
1. Fast Cruise/Sea Trials and Completion Prerequisites	ISIC	Start of availability. Applicable portions of Appendix U
2. Approve Sea Trial Agenda	ISIC	Prior to Fast Cruise (-7 to -14 days)
3. Salvage Inspection	ISIC	-14 days
4. Pre-Critical Inspection (2 days) {Nuclear powered ships only}	ISIC (Only required when the reactor has been shutdown greater than 16 weeks.)	Within 1 month of criticality
5. Dock Trials (1 day or less)	CO of Ship	-10 days
6. Phase II Crew Certification and Material Inspection	Crew Certification N/A unless crew turnover greater than 15%. Material inspection on a case-by-case basis.	Prior to Fast Cruise (if applicable)
7. Supervising Authority Message Verifying Material Condition Satisfactory for Fast Cruise and Sea Trials	Supervising Authority to Ship and ISIC info TYCOM	Prior to Fast Cruise
8. Supervising Authority Message Verifying Work Performed by Industrial Activity	Industrial Activity to Ship and ISIC info TYCOM	Prior to Fast Cruise
9. ISIC Message Reporting Completion of Salvage Inspection, Re-Entry Control, Departure From Specifications, URO MRC Audits and Sampling Audit of Industrial Activity Work	ISIC to TYCOM	Prior to Fast Cruise
10. Escort Requirement Recommendation/Waiver Request Message/TYCOM to NAVSEA Escort Waiver NAVSEA Approval of Escort Waiver	ISIC to TYCOM	Prior to Fast Cruise Appendix D (Message) Para. 3.6.8.3.9.b.(4) (Waiver)
11. Request Permission to Commence Fast Cruise Message	CO of Ship to ISIC	-4 days
12. Authorize Ship to Commence Fast Cruise Message	ISIC	-4 days
13. Commence Fast Cruise (1-2 days)	CO of Ship	-3 days
14. Report Completion of Fast Cruise and Ready for Sea Trial Message	CO of Ship to ISIC **(info TYCOM)**	-1 day **Appendix AM**
15. Report Readiness for Sea Trials	**ISIC to TYCOM**	**-1 day Appendix S**
16. Authorize Commencement of Sea Trials Message	**TYCOM** to Ship (info **CNO and NAVSEA**)	-1 day **Appendix X**
17. Commence Sea Trials	CO of Ship	0
18. Sea Trials Completion Message	CO of Ship to ISIC	+1 after Sea Trials

NOTE: UNLESS OTHERWISE INDICATED, SCHEDULE DATES ARE REFERENCED TO SEA TRIALS UNDERWAY DATE.

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APPENDIX S

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION PRIOR TO SEA TRIALS FOR CNO SCHEDULED AVAILABILITIES OF LESS THAN 6 MONTHS DURATION (SUBMARINES ONLY)

FM ISIC//
TO TYCOM//
INFO COMSUBDEVRON FIVE SAN DIEGO CA//N4//
SUPERVISING AUTHORITY
COMNAVSEASYSCOM WASHINGTON DC //92Q/PMS 392//
COMSUBGRU NO.//N4//
BT
UNCLAS //N09094//
GENADMIN/ISIC//
SUBJ/(SUBS) USS (SHIP NAME SSN/SSBN HULL NO.) MATERIAL CERTIFICATION/ READINESS FOR SEA TRIALS//
REF/A/DOC/SHIPYARD – INDUSTRIAL ACTIVITY/(DATE OF LETTER)//
REF/B/DOC/USS (SHIP NAME)/(DATE OF LETTER)//
REF/C/DOC/CLF-CPF/(DATE OF CURRENT REVISION)//
REF/D/DOC/NAVSEA/(DATE OF CURRENT REVISION)//
REF/E//DOC/SHIPYARD//
NARR/REF A IS SUPERVISING AUTHORITY SUBSAFE CERTIFICATION MESSAGE, REF B IS SHIP CERTIFICATION MESSAGE, REF C IS CINCLANTFLT/CINCPACFLTINST 4790.3,
JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF D IS NAVSEA 0924-LP-062-0010,
SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF E IS SEA TRIALS AGENDA.
RMKS/1. IN ACCORDANCE WITH REFS A AND B, THIS MSG CERTIFIES THAT ALL WORK ACCOMPLISHED BY FORCES AFLOAT AND SHIPYARD HAS BEEN SATISFACTORILY COMPLETED AND RETESTED IN ACCORDANCE WITH REF A AND B. CERTIFICATION REQUIREMENTS OF REF C AND D HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY NOT AFFECTED BY THE AVAILABILITY WORK PACKAGE HAS BEEN SUSTAINED.
2. THERE ARE NO OUTSTANDING RECS. THE FOLLOWING DEPARTURES FROM SPECIFICATION ARE CURRENTLY OUTSTANDING:
DEPARTURE NO. TYPE SYSTEM/COMPONENT RESTRICTION (IF ANY)
A.
B.
3. ALL URO MRC MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF E HAVE BEEN SUCCESSFULLY ACCOMPLISHED WITHIN THE REQUIRED PERIODICITY.
4. A SALVAGE INSPECTION WAS CONDUCTED AND ALL SALVAGE INSPECTION DEFICIENCIES HAVE BEEN CLEARED.
5. THE SEA TRIALS AGENDA HAS BEEN REVIEWED AND APPROVED.
6. A REPRESENTATIVE SAMPLING AUDIT OF AT LEAST 10% OF THE SUPPORTING DOCUMENTATION FOR ALL WORK ACCOMPLISHED WITHIN THE SUBSAFE BOUNDARY BY THE SHIPYARD AND OTHER INDUSTRIAL ACTIVITIES WAS CONDUCTED. NO UNRESOLVED DEFICIENCIES REMAIN.
7. A 100% AUDIT OF CWPS FOR SUBSAFE WORK ACCOMPLISHED BY THE FMA (IF APPLICABLE) AND SHIP'S FORCE WAS CONDUCTED. NO UNRESOLVED DEFICIENCIES REMAIN
8. FAST CRUISE HAS BEEN SATISFACTORILY PERFORMED.
9. REQUEST SEA TRIALS AUTHORIZATION BE GRANTED//
BT

NOTE: ITEM 5 IS ONLY REQUIRED WHEN SALVAGE INSPECTIONS WERE PERFORMED. ITEM 6 IS ONLY REQUIRED WHEN A FORMAL SEA TRIALS AGENDA HAS BEEN PREPARED AND SUBMITTED.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED

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APPENDIX T

MAJOR TRIAL AND INSPECTION MILESTONES FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS DURATION (SUBMARINES ONLY)

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
A. Periodic Monitoring Inspections	ISIC/TYCOM Representative	Start to completion	
B. Pre-Criticality Inspection	ISIC/TYCOM Representative	Criticality -6 weeks for NAVSEA 08 RSE (Pre-Crit) and -4 weeks for PORSE	
C. Pre-Criticality Examination in accordance with OPNAVINST 3540.3	NAVSEA/FLTCINC	Criticality -4 weeks for NAVSEA 08 RSE (Pre-Crit) and -2 weeks for PORSE	
D. Fast Cruise, Sea Trials and Completion Prerequisites ("Countdown Message")	TYCOM	Sea Trials -90 days	Appendix U
E. Phase I Crew Certification	ISIC/TYCOM Representative	Sea Trials -35 days	
F. Approve Sea Trials Agenda	ISIC/TYCOM Representative NAVSEA for Propulsion Trials; Director Strategic Systems Project Office for Poseidon/TRIDENT Weapons Trials	Sea Trials -30 days	
G. Salvage Inspection	ISIC/TYCOM Representative	Sea Trials -28 days	
H. Escort Recommendation (Message)	ISIC/TYCOM Representative	Sea Trials -28 days	
I. Dock Trials	CO of Ship	Sea Trials -21 days	
J. Phase II Crew Certification and Material Inspection	ISIC/TYCOM Representative	Sea Trials -9 days	
K. Audit Re-Entry Control, Departure from Specifications, URO MRCs (Formal Report Required)	ISIC/TYCOM Representative	Sea Trials -9 days	
L. Crew and Material Certification Message	ISIC/TYCOM Representative (Includes Events J & K)	Sea Trials -9 days	Appendix H

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
M. Supervisory Authority Message Verifying Material Condition Satisfactory for Fast Cruise	Supervisory Authority	Sea Trials -9 days	Appendix **AC**
N. Readiness for Fast Cruise	CO of Ship	Sea Trials -9 days	Appendix **AL**
O. NAVSEA Message Certifying Systems Satisfactory for Sea Trials and Depth Authorization	NAVSEA	Sea Trials -9 days	Appendix **AB**
P. Message Certifying Crew and Material Readiness to NAVSEA/Authorize Ship to Commence Fast Cruise Upon Receipt of NAVSEA Permission to Conduct Critical Operations	TYCOM	Sea Trials -8 days	Appendix **AG**
Q. Grant Permission to Conduct Critical Operations Message	NAVSEA	Sea Trials -7 days	
R. Commence Fast Cruise	CO of Ship	Sea Trials -7 days (2 days on, 1 off, 2 on)	
S. Report Completion of Fast Cruise and Ready for Sea Trials Message, CO concurs	Supervising Authority to TYCOM	Sea Trials -1 day	Appendix **AD**
T. Report Ship Readiness for Sea Trials	CO of Ship	Sea Trials -1 day	Appendix **AM**
U. Message update of material certification status Trials	ISIC	Sea Trials -1 day	Appendix **AJ**
V. Authorization to Commence Sea Trials and Depth Authorization Message	TYCOM	Sea Trials -1 day	Appendix **AH**
W. Commence Sea Trials	CO of Ship	0	
X. Daily Sea Trials SITREP/Status Report	Supervising Authority, TYCOM, CO of Ship	At Least Daily During Sea Trials	Appendix I
Y. Sea Trials Completion Message	Supervisory Authority	+1 After Sea Trials	Appendix **AF**
Z. NAVSEA Message Certifying Ship satisfactory for URO	NAVSEA	+1 After Sea Trials	Appendix **AQ**
AA. Report Material Condition of Ship Subsequent to Sea Trials	ISIC	+1 After Sea Trials	Appendix **AK**
AB. URO Message	TYCOM	+1 After Sea Trials	Appendix **AI**

NOTES: 1. SEE PARAGRAPH 3.6.8.4.5 OF THIS CHAPTER FOR ADDITIONAL GUIDANCE CONCERNING ISIC/TYCOM REPRESENTATIVE CONDUCTED INSPECTIONS.

2. IN THE EVENT THAT SEA TRIALS ARE ABORTED AND/OR AN ADDITIONAL SEA TRIAL BECOMES NECESSARY, A SPECIAL "COUNTDOWN MESSAGE" (APPENDIX AN OF THIS CHAPTER) SHALL BE INITIATED BY THE TYCOM.

3. UNLESS OTHERWISE INDICATED, SCHEDULE DATES ARE REFERENCED TO SEA TRIALS UNDERWAY DATE.

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APPENDIX U

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING COMPLETION PREREQUISITES FOR AVAILABILITIES OF GREATER THAN SIX MONTHS DURATION (SUBMARINES ONLY)

FM COMSUBLANT/PAC//N43//
TO USS (SHIP NAME)//
ISIC//
SUPERVISING AUTHORITY//CODES//
INFO CNO WASHINGTON DC//N87//
FLTCINC//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08//
DIRSSP WASHINGTON DC (FOR SSBNS)//205//
SUBOPAUTH (IF OTHER THAN PARENT TYCOM)//
COMSUBGRU NO.//N3//
COMSUBDEVRON FIVE SAN DIEGO CA//N3//
BT
UNCLAS //N09094//
MSGID/GENADMIN/TYCOM//
SUBJ/(SUBS) USS (SHIP NAME SSN/SSBN HULL NO.) (TYPE AVAILABILITY) FAST CRUISE, SEA TRIAL AND COMPLETION PREREQUISITES//
REF/A/DOC/CINCLANTFLT/CINCPACFLTVOLUME V(DATE)//
REF/B/DOC/NAVSEA/(DATE)//
NARR/REF A IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF B IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL//
RMKS/1. REFS A AND B PRESCRIBE TYCOM AND NAVSEA REQUIREMENTS FOR INDUSTRIAL AVAILABILITY FAST CRUISE, SEA TRIAL AND COMPLETION.
2. FOLLOWING REPORTS AND AUTHORIZATIONS ARE PREREQUISITES TO START OF FAST CRUISE:
A. IAW REF A (APPENDIX H). ISIC MSG REPORT TO TYCOM THAT CREW CERTIFICATION AND MATERIAL CONDITION IS SATISFACTORY FOR SEA TRIALS. REPORT SHALL INCLUDE CERTIFICATION OF FORCES AFLOAT WORK IS IN ACCORDANCE WITH REFS A AND B, MATERIAL/SALVAGE CONDITION, REC STATUS, IDENTIFICATION OF ANY OUTSTANDING DEPARTURES FROM SPECIFICATION AND URO MRC ACCOMPLISHMENT WITHIN THE REQUIRED PERIODICITY.
B. IAW REF B, SUPERVISING AUTHORITY MSG REPORT TO NAVSEA AND TYCOM THAT MATERIAL CONDITION OF SYSTEMS AND EQUIPMENTS INSTALLED, REPAIRED AND/OR TESTED BY INDUSTRIAL ACTIVITY ARE SATISFACTORY FOR POST (TYPE AVAILABILITY) TRIALS, INCLUDING CORRECTION OF ALL CAT I AND AUDIT ITEMS AND STATUS OF ALL INCOMPLETE CAT IA AUDIT ITEMS. (APPENDIX **AC**)
C. CO, USS (SHIP NAME SSN/SSBN HULL NO.) MSG REPORT IAW REF A (APPENDIX **AL**) TO TYCOM STATING THAT CREW AND SHIP ARE READY FOR SEA TRIALS, LISTING EXCEPTIONS SUCH AS COMPLETION OF FAST CRUISE.
D. IAW REF B, NAVSEA (PMS 392) MSG TO TYCOM CERTIFYING MATERIAL CONDITION OF USS (SHIP NAME SSN/SSBN HULL NO.) FOR SPECIFIC TRIAL OPERATING DEPTH. (APPENDIX **AB**)

E. TYCOM MSG IAW REF A (APPENDIX **AG**) TO NAVSEA 08 AND CO, USS (SHIP NAME SSN/SSBN HULL NO.) REQUESTING NAVSEA AUTHORIZATION FOR CRITICAL REACTOR OPERATIONS AND GRANTING SHIP PERMISSION TO START FAST CRUISE UPON RECEIPT OF THIS AUTHORIZATION.
F. NAVSEA 08 MSG AUTHORIZING CRITICAL REACTOR OPERATIONS FOR FAST CRUISE AND SEA TRIALS.
3. FOLLOWING REPORTS AND AUTHORIZATIONS ARE PREREQUISITES TO START OF SEA TRIALS:
A. IAW REF B SUPERVISING AUTHORITY MSG REPORT TO TYCOM REPORTING COMPLETION OF FAST CRUISE AND READINESS FOR SEA TRIALS. (APPENDIX **AD**)
B. CO, USS (SHIP NAME SSN/SSBN HULL NO.) MSG IAW REF A (APPENDIX **AM**) TO TYCOM AFTER COMPLETION OF FAST CRUISE REPORTING READINESS FOR SEA TRIALS.
C. ISIC MSG REPORT IAW REF A (APPENDIX **AJ**) PROVIDING STATUS OF MATERIAL CONDITION CERTIFICATION SUBSEQUENT TO FAST CRUISE.
D. IAW REF B (APPENDIX **AH**), TYCOM (ACTING FOR FLTCOM) MSG TO CO, AUTHORIZING DIVING TO A SPECIFIED SEA TRIALS DEPTH.
E. IAW REF A (APPENDIX **AH**) TYCOM MSG TO CO, USS (SHIP NAME SSN/SSBN HULL NO.) GRANTING PERMISSION TO PROCEED ON SEA TRIALS LISTING ANY OPERATIONAL RESTRICTIONS.
4. USS (SHIP NAME SSN/SSBN HULL NO.) SEA TRIALS WILL BE UNDER OPCON OF _____.
5. CO, USS (SHIP NAME SSN/SSBN HULL NO.) IS REQUESTED TO PROVIDE SEA TRIAL SITREPS AT INTERVALS OF 24 HRS OR LESS AND IDENTIFY ITEMS MANDATORY FOR CORRECTION PRIOR TO COMPLETION OF (TYPE AVAILABILITY).
6. FOLLOWING REPORTS AND AUTHORIZATIONS ARE PREREQUISITES TO CONDUCT OF SUB-MERGED OPERATIONS AFTER (TYPE AVAILABILITY) COMPLETION:
A. IAW REF B, SUPERVISING AUTHORITY MSG REPORT TO NAVSEA REPORTING COMPLETION OF AUTHORIZED WORK AND CAT IA AUDIT ITEMS LISTING EXCEPTIONS. (APPENDIX **AF**)
B. IAW REF B, NAVSEA MSG TO TYCOM CERTIFYING MATERIAL CONDITION OF USS (SHIP NAME SSN/SSBN HULL NO.) SATISFACTORY FOR UNRESTRICTED OPERATIONS TO DESIGN TEST DEPTH. (APPENDIX **AP**)
C. ISIC MSG IAW REF A (APPENDIX **AK**) TO TYCOM REPORTING MATERIAL CONDITION OF SHIP AND URO MRC STATUS SUBSEQUENT TO SEA TRIALS.
D. IAW REF B (APPENDIX **AI**), TYCOM MSG TO CO, USS (SHIP NAME SSN/SSBN HULL NO.) AUTHORIZING CONDUCT OF UNRESTRICTED OPERATIONS TO DESIGN TEST DEPTH.-16)//
BT

NOTE: MESSAGES LISTED IN PARAGRAPHS 2 THROUGH 6 OF THIS APPENDIX SHOULD BE ASSIGNED APPROPRIATE PRECEDENCE AND PARALLELED BY TELEPHONE TO ACTION ADDEES CITING DATE-LINE GROUP OF FORTHCOMING MESSAGES. ALL ADDEES OF THIS MESSAGE ARE TO BE INCLUDED AS ADDEES ON THE MESSAGES LISTED IN PARAGRAPHS 2 THROUGH 6 OF THIS APPENDIX.

NOTE: IN THE EVENT THE SEA TRIALS ARE ABORTED OR AN ADDITIONAL SEA TRIAL BECOMES NECESSARY, A SPECIAL "COUNTDOWN MESSAGE" (APPENDIX AN OF THIS CHAPTER) SHALL BE INITIATED BY THE TYCOM.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX V

MINIMUM DOCK TRIALS REQUIREMENTS (SUBMARINES ONLY)

1. Dock Trials. Ship's Force Dock Trials provide the opportunity to test and check out systems, components and portable equipment prior to the Fast Cruise training period simulating underway conditions. Although normally a period of one day is assigned for integrated Ship's Force Dock Trials, tests and evolutions performed in the one to two weeks prior to the Dock Trial date may be accepted by the CO as fulfilling the requirements of this paragraph. The purpose of Dock Trials is to afford the ship an opportunity to demonstrate that major systems and equipments are in fact ready to support Sea Trials. It is expected that individual equipments will have been satisfactorily tested prior to commencement of the integrated operational tests afforded by Ship's Force Dock Trials.

1.1 Supervising Authority. The industrial activity may desire to conduct "machinery checkouts" or system checks prior to the Ship's Force Dock Trials in order to test the propulsion plant or other ship's systems. In order to support these evolutions, close liaison between the ship's CO and the industrial activity will be required. For these evolutions, completion of repairs or modifications to all ship's systems are not required except for those systems which directly support the proposed tests.

1.2 Scheduling of Tests. The scheduling of Ship's Force Dock Trials is flexible. Ship's Force Dock Trials may be scheduled by mutual agreement between the ship and the supervising authority but must take place prior to certification of crew/material readiness with adequate time allowed for collection of deficiencies discovered during the Ship's Force Dock Trials. Preparation of the agenda and schedule for the Dock Trials is the CO's responsibility.

1.3 Extent of Trials. Ship's Force Dock Trials are conducted by the Ship's Force and are normally unhampered by repair work. This applies to the entire ship not just the propulsion plant. The trials may be witnessed by the industrial activity.

1.3.1 Tests. The term "test" shall include, where applicable:

a. The review and use of a procedure for correct line-up, starting, operation and securing of systems or equipments.

b. Rigging, connecting and using all hoses, fittings and devices required for the test evolution.

c. Operation of systems in all modes, such as emergency, hand, override, cross-connected, normal, local, etc.

d. Checking all electrical and mechanical, local and remote indicators for proper readings.

e. Testing communications between normal control station and other locations involved in operating the system or performing the evolution.

f. Calibration and adjustment of equipments, systems and devices where required.

g. Inventory consumables, fittings, devices and portable test equipment to ensure that sufficient amounts are on board for proper operation throughout the trials.

1.3.2 Specific Test Areas. There are specific tests which relate to both systems and ship safety which must be conducted in preparation for Sea Trials.

a. The following are specific alongside tests which shall be conducted during Dock Trials:

(1) Check the sound powered phone system between all stations.

(2) Check the announcing system between all stations.

(3) Test collision alarm and diving alarm.

(4) Test general alarm.

(5) Test each light on BCP.

(6) Test whistle.

(7) Check emergency lights.

(8) Operate all hydraulic plants using each installed pump.

(9) Conduct a complete air charge using only ship's compressors.

(10) Conduct a normal battery charge using ship's motor generator on shore power.

(11) Conduct low and high pressure blow of all Main Ballast Tanks (MBT). Thereafter conduct dockside operation portion of URO 022 (as appropriate).

(12) Flood sanitary tanks and then blow/pump them.

(13) Operate each main vent in hand and power. Following operation, with valves shut, conduct a controlled removal of MBT vent covers, one at a time, to check MBT vents for leaks.

(14) Operate the outboard induction in hand and power.

(15) Operate the diesel engine exhaust valve in hand and power.

(16) Operate inboard induction valves.

(17) Raise, train and lower periscopes, snorkel, radar and antenna masts and fairings as applicable.

(18) Test operation of radio transmitters and receivers on all antennas.

(19) Operate all sonar and radar equipment at rated conditions.

(20) Take and plot LORAN/OMEGA/NAVSAT fixes using each antenna.

(21) Test operation of drain pump using each bilge suction

(22) Test operation of trim system and pump by pumping to and from each tank and by pumping to and from sea (if applicable).

(23) Calculate and enter the diving trim compensation.

(24) Test operation of portable submersible pump from each installed outlet.

(25) Fire inboard slugs from torpedo room.

(26) Fire inboard slugs from weapons launch console.

(27) Test magazine flooding system.

(28) Operate each lube oil system including pumps, controllers, purifiers and indicators.

(29) Start SINS/ESGN and gyrocompasses; determine that they settle out and take an azimuth; check all repeaters.

(30) Check fresh water system, have water samples analyzed.

(31) Test the capstans.

(32) Test bow plane rigging (where applicable).

(33) Test bow/sail and stern plane tilting in hand, normal power and emergency. Test normal and emergency plane angle indicators.

(34) Test rudder in hand, normal and emergency power. Test normal and emergency rudder angle indicators.

(35) Check alignment of periscopes, TBTs and all bearing and range repeaters.

(36) Test the engine order telegraphs.

(37) Test Automatic Bus Transfer Devices.

(38) Operate each watertight door and hatch, each bulkhead flapper and each intercompartment air salvage valve.

(39) Check operation of escape hatch fittings.

(40) Operate signal ejectors by impulse and hand using dummy signal. Fire water slugs from all launchers, both locally and remotely.

(41) Turn on and check running lights for brightness and proper lenses (to be done at night).

(42) Check freon air conditioning system.

(43) Check underwater log.

(44) Check 400 Hz MG sets.

(45) Check out galley equipment.

(46) Check fathometer.

(47) Check bilge flooding alarms.

(48) Check dummy log.

(49) Check ship service air system.

(50) Check out vapor compressor distilling units.

(51) Check anchor windlass and brake operation.

(52) Check battery water system.

(53) Check out atmosphere monitoring equipment, both installed and portable.

(54) Operate oxygen generator, CO_2 scrubbers, CO burners and emergency air breathing system.

(55) If possible, lower, train, operate and raise the SPM.

(56) Ensure that all required PMS to ship depth detectors is complete.

(57) Test diesel engine high vacuum cut-out. Take altimeter to engine room or diesel generator room for test.

(58) Check main propulsion.

(59) Ensure five-day supply of oxygen onboard, test operate the Electrolytic Oxygen Generator(s) (EOG).

APPENDIX W

MINIMUM FAST CRUISE REQUIREMENTS (SUBMARINES ONLY)

1. Fast Cruise Requirements. Asterisk items are the minimum requirements for an industrial activity availability of less than six months duration. All listed items are the minimum requirements for an industrial activity availability of greater than six months duration.

a. All Ships (as applicable):

*****(1) Station the maneuvering watch and check each system and piece of equipment for proper operation. (For available less than six months duration, system/equipment checks are not required).

*****(2) Station the normal underway watch (section watches).

(3) Simulate getting underway and return to port (day and night).

*****(4) Walk through all major Sea Trial evolutions, including cycling of hull and back-up valves to be tested during the deep dive.

*****(5) Exercise the reduced visibility detail.

*****(6) Rig for Emergency Ventilate.

(7) Spot check storage and availability of spare parts and tools. Verify adequacy of stores and provisions.

*****(8) Rig for dive and rig for surface.

*****(9) Simulate diving and surfacing.

*****(10) Rig for deep submergence.

(11) Rig for various quiet conditions.

(12) Drill at loss of power to various circuits including lighting, communications, 400 Hz power, etc.

(13) Battery charge - Normal or equalizer as required.

*****(14) Conduct the following emergency drills:

*****(a) Fire.

*****(b) Collision.

*****(c) Flooding.

*****(d) Toxic Gas.

(e) Abandon Ship.

*****(f) Man Overboard.

(g) Submarine Escape.

(h) Loss of AC Power.

(i) Emergency Ventilation.

(j) Loss of Air Conditioning.

(k) Loss of Lighting.

(l) Loss of Interior Communications.

(15) Exercise the crew at battle stations.

(16) Conduct communications and ECM drills.

*****(17) Conduct an air charge to all air banks. (For availabilities less than six months duration "Conduct an air charge").

*****(18) Bleed oxygen and ventilate ship. Ensure a five day supply of oxygen is onboard and EOG(s) are fully operational. Ships without EOG(s) may provide a five day supply of oxygen in O^2 candle form and have oxygen banks inerted until after availability completion.

(19) Anchor.

(20) Operate atmosphere control equipment and take air samples.

*****(21) Check out all interior communications circuits, including battle telephones.

(22) Simulate submerged patrol, performing all evolutions and operating equipment normally used.

*****(23) Operate freshwater/seawater heat exchangers at sufficient load to verify proper operation (not fouled with marine growth).

(24) Nuclear powered submarines shall meet all requirements of reference (r), Appendix D, Part 3.

b. Additional requirements for SSBNs. SSBNs shall conduct exercises in casualties to missile tube breather valves which would result in:

(1) Flooding.

(2) Introducing toxic gases into the missile compartment from gas generators.

APPENDIX X

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING AUTHORIZATION FOR SEA TRIALS FOLLOWING CNO SCHEDULED AVAILABILITY OF LESS THAN SIX MONTHS

(SUBMARINES ONLY)
FM COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
TO USS (SHIP NAME)//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB(LANT/PAC)//
SUBJ/(SUBS) USS (SHIP NAME/HULL NO.) SEA TRIALS AUTHORIZATION//
REF/A/RMG/ISIC/(DTG)//(APPENDIX S)
NARR/REF A IS ISIC REQUEST FOR COMMENCEMENT OF SEA TRIALS
RMKS/1. REF A REPORTED THE SUBSAFE MATERIAL CONDITION OF USS (SHIP NAME/HULL NO.) IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
2. THIS MESSAGE CONFIRMS THAT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN THE SUBSAFE CERTIFICATION BOUNDARY OF USS (SHIP NAME/HULL NO.) HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS (SHIP NAME/HULL NO.) IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH (SUBJECT TO ANY RESTRICTIONS IN PARA 2 OF REF A IF ANY ARE IDENTIFIED).
3. USS (SHIP NAME/HULL NO.) IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO (SPECIFIED) DEPTH **IN ACCORDANCE WITH** THE SEA TRIAL AGENDA APPROVED BY (ISIC).//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED

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APPENDIX Y

MINIMUM SEA TRIALS REQUIREMENTS FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS DURATION (SUBMARINES ONLY)

1. Sea Trial Agenda. This Appendix delineates the minimum requirements incident to Sea Trials following industrial activity availability/RAV/RAD. Additional events listed in Appendix **AR**, may be included as desired by the CO.

2. Sea Trial Policy. The following policies apply to conduct of trials and tests associated with industrial activity availabilities, NAVSEA or Naval Surface Warfare Center, Carderock Division sponsored Trials/Tests or any other situation where the ship is requested to conduct trials or tests:

a. No test or trial event shall be conducted that requires crew intervention to avoid exceeding normal operating limits. Trial agendas will be based on the expectation that the ship will remain within normal operating limits of the SOE and at angles less than 30 degrees.

b. The trial director must be prepared to project whether the next event might exceed normal operating limits based on the empirical results of the previous event. A run that is predicted to exceed normal operating limits should be deleted along with the more demanding runs of that sequence.

c. Any run which will result in exceeding normal operating limits of the SOE or 30 degree angles but which is essential to provide adequate test data must be specifically approved by the TYCOM. The test/trial sponsor will obtain this permission.

d. A violation of the SOE limit or exceeding a 30 degree angle, not previously approved, should be reported by unit SITREP. The TYCOM will resolve the situation.

e. Specific written approval by the TYCOM is not required to operate outside the upper limits of the SOE, i.e., shallow and fast, while conducting the following operations during Sea Trials or tests in accordance with an agenda approved by the ISIC, NAVSEA or higher authority:

(1) Conducting full power runs or cavitation curves.

(2) NAVSEA sponsored acoustic trials in accordance with Naval Surface Warfare Center, Carderock Division acoustic trial agenda.

f. In cases where troubleshooting is required, it must meet the following criteria or a formally approved change to the agenda is mandatory.

(1) The troubleshooting does not violate any policy listed in paragraphs 1.a through e of this Appendix or any other requirement of the trials agenda.

(2) The troubleshooting will not result in the ship being in a certain condition before that condition is reached during the normal testing sequence. For example, troubleshooting requiring the ship to be deeper than 200 feet cannot be done until after the deep dive. Likewise, troubleshooting requiring large angles or turn rates cannot be done until after the completion of the steering and diving operational tests and the large angle tests

3. Test Phasing. The Sea Trials should be scheduled and phased to support actions enroute to the test dive area, in the test dive area, prior to the deep dive, etc., subject to the amplifying notes.

4. The following tests and evolutions will be carried out on the surface enroute to the test dive area and prior to the initial tightness dive:

a. Underway. Rig for dive. Energize heaters to stills.

b. Conduct operational test of rudder in normal and emergency modes (See Note 5).

c. Navigation system check. Takes fixes by all electronic, celestial, and visual means and compare.

d. Test underway log(s) using measured mile or navigational fixes to determine accuracy.

e. Test accuracy of all bearing transmitters and indicators. Compare sonar, visual and radar bearings.

f. Check operation of all radars. Demonstrate accuracy by conducting simultaneous radar and visual plot.

g. Inspect stern tube packing gland/seals and circulating water flow.

h. Test fathometer(s) and compare with charted soundings.

i. Run ahead at full power long enough for temperatures to reach a stable value. After readings have stabilized, operate rudder through full throw in each direction in normal and emergency power. Refer to reference (u) regarding depth of water. Check out hand modes.

j. Ahead flank to back emergency.

k. Run astern up to full power. Full power run system to be consistent with backing pressure limitations on plane and rudder rams and within the main engine limits of the applicable steam and electric plant manual. Operate rudder through full throw.

l. Check operation and accuracy of ship's gyro compass.

m. Rendezvous with escort, if an escort is required. Conduct radio and sonar communications checks (See Note 1).

n. Test all control surfaces in all modes.

o. Flood variable tanks to computed compensation less a safety factor.

p. Operate trim and drain pumps.

q. Test variable ballast system for proper operation.

r. Test low pressure air, normal and EMBT blow systems. (See Note 13).

s. Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

t. Ensure all MBT blow systems are fully operational and in a normal line up configuration.

u. Ship's Force instruct Sea Trials riders on the proper use of Emergency Air Breathing System.

5. The following tests and evolutions will be carried out immediately prior to or during the initial tightness dive:

a. Obtain navigational fix and take sounding. Maximum depth of water is 400 feet as specified in the applicable TYCOM Operational Order.

b. Transmit initial tightness dive message. Conduct a running dive to periscope depth. Obtain 1/3 speed. Trim, if practical, at periscope depth. If sea state requires deeper submergence, proceed slowly to 150 feet, 160 feet for SSBN 726 Class submarines, to obtain 1/3 speed trim. Use conservative angles and speed on initial dive.

c. Check operation of ship control systems, including depth indication (See Note 2).

d. When escort is required, communicate with escort on WQC at each depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be established before continuing (See Note 1).

e. All hands inspect for leaks and correct them.

f. Vent the fuel system if sea pressure compensated.

g. At periscope depth, operate all masts checking optics and leakage. Observe speed and depth restrictions for masts without violation of the SOE (See Note 11).

h. Test operation of trim and drain system.

i. Operate all Main and Auxiliary Sea Water hull and back-up valves and those other valves worked during the availability. Equalize all sea pressure on all systems designed for test depth as set forth in reference (ac) (See Notes 9 and 10).

j. Test the SPM (See Note 30 in Appendix **AR** of this chapter).

k. Equalize signal ejectors or launchers. Conduct operational test of each by hand and impulse methods, as applicable. (See Note 4).

6. The following tests and evolutions will be carried out following the initial tightness dive and prior to the deep dive:

a. Transmit initial tightness dive complete message. Charge air banks and battery if necessary. The ship may be submerged while charging air banks provided the depth of the ship does not exceed other guidelines in this instruction, or those of the flooding bill or ship's operating procedure.

b. If escort is required, detach escort after initial tightness dive. Escort will then proceed to station for deep dive. Ensure that deep dive rendezvous time and location are clearly established before escort is released. The escort may be detached after completing all initial tightness dive events and surfacing using EMBT blow from depths of 400 feet or deeper. The escort may be used for additional testing on the transit. Transit depths shall not exceed initial tightness dive depths.

7. The following tests and evolutions will be carried out immediately prior to or during the deep dive:

a. Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

b. Line up MBT system for normal operation.

c. Take sounding. Accurately fix ship's position within the specified dive area along with the maximum water depth as given in the applicable TYCOM Operational Order. Transmit the commencing deep dive message.

d. Submerge to periscope depth and trim the ship.

e. Obtain stop trim. Take readings required to make a check of ballasting.

f. Trim ship to maintain neutral buoyancy (See Note 3).

g. Line up propulsion plant for maximum reliability in accordance with the applicable Steam and Electric Plant Manual.

h. Rig ship for deep submergence. All systems should be in the maximum secure condition with unnecessary sea systems isolated as prescribed in reference (ac).

i. Station additional personnel throughout the ship to inspect for leaks as deemed necessary.

j. At 150 feet, 160 feet for SSBN 726 Class submarines, 200 feet and then in increments of 200 feet while above and descending to one-half the maximum operating depth and every 100 feet or other lesser specified increments thereafter down to the maximum authorized operating depth:

(1) Inspect for leaks.

(2) Adjust trim (See Note 3).

(3) Communicate with escort (if escort required) at each 100 feet a depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to a depth at which communications can be re-established before continuing (See Note 1).

k. At depths listed for hull valve cycling in reference (ac) and at the maximum authorized operation depth:

(1) Check accuracy of gauges and repeaters (See Note 2).

(2) Evaluate signal ejectors or launchers. Conduct operational test of each by hand and impulse methods, as applicable. (See Note 4).

(3) Check shafting bearings and stern tubes for excessive heating, leakage and noise. Main shaft seals must be tested at each depth specified in reference (ac) testing one seal for 20 minutes, and shifting to the other seal. **Test the second seal for 20 minutes or until the boat is ready to go to the next depth, whichever comes first.**

(4) Cycle rudder and planes through full throw to check for binding. Cycling of rudder and planes through full throws should be limited to test depth minus 100 feet (See Note 5).

(5) Operate all Main and Auxiliary Sea Water hull and back-up valves and those other seawater system valves worked during the availability (using remote closures, as applicable, from flooding control stations) that are required to maintain propulsion and other functions vital to the ship's operation at increments of depth specified in reference (ac).

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4B OF REFERENCE (AC). OBSERVE RESTRICTIONS ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4D OF REFERENCE (AC).

NOTE: TRASH DISPOSAL UNITS (TDU) WITH BALL VALVES WILL NOT BE OPERATED BELOW 200 FEET. TDUs WITH FLAPPER VALVES WILL NOT BE OPERATED BELOW 150 FEET.

(6) Operate trim and drain pumps, discharging to sea.

(7) Cycle main ballast tank vents to check for binding. Main ballast tank vents will be cycled hydraulically except at test depth where they will be cycled manually.

l. Surface fully with EMBT blow in accordance with applicable URO MRC. Check air bank pressures before and after blow.

m. Transmit completion of deep dive message.

8. The following tests and evolutions will be carried out submerged following the deep dive:

a. Full power run (See Notes 6, 7, and 12).

b. Steering and diving operation at full speed (See Note 5).

c. Steep angles - operate ship through several depth changes using large up and down angles to check operation of ship machinery (See Note 7).

d. Time raising each periscope and mast at maximum depth and speed for which they are designed. Check training feature where applicable.

e. Run and observe air conditioning plants throughout trials noting deficiencies. Operate the Lithium Bromide air conditioning plant (if installed) to demonstrate ability to carry entire maximum existing ship's air conditioning load or 100 percent capacity.

NOTES

1. **In the execution of any Sea Trial, whether escorted or not, submarine COs are reminded of their responsibility to communicate with escorts and/or shore authorities within the prescribed previously agreed upon time limits to avoid initiation of lost submarine procedures.**

2. **Compare all depth and pressure gauges; check operation of planes and rudder in all modes, etc. Depth and pressure gauges should be checked as soon as each next specified depth is reached.**

3. **Deep dive should be conducted using moderate speed and constantly adjusting trim at depths indicated in paragraph 7.j of this Appendix to maintain neutral buoyancy. Moderate speed shall be defined as that range of speed that allows the ship optimum recovery (as shown on recovery curves) if loss of stern plane control and/or flooding occurs.**

4. **Integrity of torpedo tubes and signal ejectors shall be established by admitting sea pressure through equalizing lines or flooding connection and the muzzle doors operated before conducting operational tests. Shoot water slugs from torpedo tubes as required by the Command and Control System (CS/CCS) Test Program down to ship/torpedo tube limiting depth, whichever is less. Shoot pyrotechnics from signal ejector on initial tightness dive and at test depth on deep dive only if any work was accomplished on the signal ejectors or if an escort vessel is required for the trial.**

5. **At maximum safe speed, operate the rudder and planes through full throw in both directions in normal and emergency power.**

6. **Run full power submerged for at least two hours. Operate at minimum non-cavitating depth but not to exceed 400 feet (SSN 688 Class submarines may exceed 400 feet, as required, consistent with the SOE but not to exceed one-half test depth plus 50 feet); water depth is not limited for this event.**

7. **Note that the required sequence of events is initial dive, deep dive, full power run submerged, back emergency, then high speed maneuverability and steep angle tests. Initial high speed ship control tests, steep angle tests and exercises at major casualties shall be conducted in water that does not exceed one and one-half times design test depth (which equates to collapse depth).**

8. **Deleted.**

9. **If major structural modifications were accomplished, those seawater systems which are not required for normal safe operation of the ship at test depth but which have been designed for and may be subjected to test depth pressure should not be subjected to submergence pressure during the initial dive to any specified depth; e.g., blown sanitary tanks. If major structural modifications were not accomplished, those seawater systems which are not required for normal safe operation of the ship at test depth, but which have been designed for and may be subjected to test depth pressure, may be equalized and operated on the initial dive to test depth. See reference (ac).**

10. This evolution (initial operation of hull and back-up valves in fully submerged condition) at depths other than specified in reference (ac) is intended for crew training is not technically required. Evolution may be abbreviated or deleted on case basis as desired by ship's CO.

11. Any evolutions (e.g., mast testing, propeller cavitation data collection, etc.) required by the Sea Trials Agenda which violate the ship's SOE must be approved by the TYCOM prior to Sea Trials in accordance with paragraph 2 of this Appendix.

12. The full power run with an ahead flank bell is to be terminated with a back emergency bell, consistent with current Main Propulsion Operating Limits (shaft torque is not a limiting factor in this test). The duration of the back emergency bell will be limited to 45 seconds, to be followed immediately by an appropriate ahead bell. The 45 second limit will:

a. Standardize the crashback requirements throughout the submarine force.

b. Provide a backing transient similar to that experienced during a stern plane jam.

c. Be short enough that ship will not gather sternway.

13. Test the normal and emergency blow systems in their normal valve line ups. A static blow shall not be used.

14. This evolution may be conducted anytime after the deep dive, provided an escort ship was not required for Sea Trials.

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APPENDIX Z

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING SHIP SUBSAFE MATERIAL CONDITION AND DEPTH RECOMMENDATION FOR FOLLOW-ON SEA TRIALS (SUBMARINES ONLY)

FM ISIC
TO COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
INFO COMNAVSEASYSCOM WASHINGTON DC//PMS392/92Q//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)
COMSUBRON (NO.)//
USS (SHIP NAME)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB(LANT/PAC)//
SUBJ/(SUBS) SUBSAFE MATERIAL CONDITION READINESS AND DEPTH RECOMMENDATION FOR (FOLLOW-ON) SEA TRIALS OF USS (SHIP NAME/HULL NO.)//
REF/A/DOC/NAVSEA /(DATE)//
REF/B/DOC/CLF-CPF/(DATE)//
REF/C/LTR/(SUPERVISING AUTHORITY)/(DATE OF LETTER)//
REF/D/LTR/ USS (SHIP NAME)/ (DATE OF LETTER)//
NARR/REF A IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF B IS CINCLANTFLT-CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, REF C **IS** SUPERVISING AUTHORITY SUBSAFE CERTIFICATION CONTINUITY LETTER, REF D IS SHIP SUBSAFE CERTIFICATION CONTINUITY LETTER.
RMKS/1**IN ACCORDANCE WITH** REF A AND B, AND AS REPORTED BY REF C AND D THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED, AND/OR TESTED BY THE INDUSTRIAL ACTIVITY AND SHIP IS CERTIFIED SATISFACTORY FOR (FOLLOW-ON) SEA TRIALS TO TEST DEPTH. THE CERTIFICATION REQUIREMENTS OF REF A HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY, 2. ISIC RECOMMENDS AUTHORIZED DIVING UNDER DELIBERATE AND CONTROLLED CONDITIONS TO TEST DEPTH **IN ACCORDANCE WITH** THE (FOLLOW-ON) SEA TRIALS AGENDA CONCURRED IN BY THE ISIC.
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED

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APPENDIX AA

SAMPLE TYCOM MESSAGE TO ISIC CONCERNING FOLLOW-ON SEA TRIALS DEPTH AUTHORIZATION FOR CNO SCHEDULED AVAILABILITIES OF LESS THAN 6 MONTHS DURATION (SUBMARINES ONLY)

FM COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
TO ISIC
USS (SHIP NAME)//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB(LANT/PAC)//
SUBJ/(SUBS) USS (SHIP NAME/HULL NO.) (FOLLOW-ON) SEA TRIALS DEPTH AUTHORIZATION//
REF/A/RMG/ISIC/(DTG)//(APPENDIX Z)
NARR/REF A IS ISIC RECOMMENDATION FOR COMMENCEMENT OF FOLLOW-ON SEA TRIALS
RMKS/1. 1. REF A REPORTED THE SUBSAFE MATERIAL CONDITION OF USS (SHIP NAME/HULL NO.) IS SATISFACTORY FOR FOLLOW ON SEA TRIALS TO TEST DEPTH.
2. THIS MESSAGE CONFIRMS THAT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN THE SUBSAFE CERTIFICATION BOUNDARY OF USS (SHIP NAME/HULL NO.) HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS (SHIP NAME/HULL NO.) IS SATISFACTORY FOR FOLLOW-ON SEA TRIALS TO TEST DEPTH (SUBJECT TO ANY RESTRICTIONS IN PARA 2 OF REF A IF ANY ARE IDENTIFIED).
3. USS (SHIP NAME/HULL NO.) IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO (SPECIFIED) DEPTH **IN ACCORDANCE WITH** THE SEA TRIAL AGENDA APPROVED BY (ISIC).//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT

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APPENDIX AB

SAMPLE NAVSEA MESSAGE TO TYCOM CONCERNING SUBSAFE MATERIAL CONDITION READINESS AND DEPTH RECOMMENDATION FOR SEA TRIALS (SUBMARINES ONLY)

FM COMNAVSEASYSCOM WASHINGTON DC//
TO COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
INFO CNO WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
USS (SHIP NAME)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/NAVSEA//
SUBJ/(SUBS) SUBSAFE MATERIAL CONDITION READINESS AND DEPTH RECOMMENDATION FOR SEA TRIALS OF USS (SHIP NAME/HULL NO.)//
REF/A/DOC/NAVSEA /(DATE)//
REF/B/RMG/(SUPERVISING AUTHORITY)/(DTG)// (APPENDIX **AC**)
REF/C/LTR/NAVSEA (SER NO./DATE)//
REF/D/LTR/COMSUB(LANT/PAC) (SER NO./DATE)//
NARR/REF A IS NAVSEA 0924-LP-062-0010, THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF B IS (SUPERVISING AUTHORITY) REPORT OF READINESS OF (SHIP NAME/HULL NO.) FOR FAST CRUISE AND SEA TRIALS. REF C CONCURRED IN SEA TRIAL AGENDA FOR USS (SHIP NAME/HULL NO.). REF D APPROVED THE SEA TRIAL AGENDA FOR USS (SHIP NAME/HULL NO.)//
RMKS/1. IAW REF A, AND AS REPORTED BY REF B, THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED, AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS CERTIFIED SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
2. SUBJECT TO CONFIRMATION BY TYCOM THAT CERTIFICATION REQUIREMENTS OF REF A HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY, RECOMMEND AUTHORIZED DIVING UNDER DELIBERATE AND CONTROLLED CONDITIONS TO TEST DEPTH IAW THE SEA TRIAL AGENDA CONCURRED IN BY REF C AND APPROVED BY REF D (SUBJECT TO THE FOLLOWING RESTRICTIONS: LIST ANY RESTRICTIONS WHICH MAY BE APPLICABLE).
3. REQUEST NAVSEA PMS(__) BE INFO ADDEE ON ALL SEA TRIAL SITREPS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AC

SAMPLE SUPERVISING AUTHORITY MESSAGE TO NAVSEA AND TYCOM CONCERNING SUBSAFE AND MATERIAL CONDITION READINESS FOR FAST CRUISE/SEA TRIALS (SUBMARINES ONLY)

FM (SUPERVISING AUTHORITY)//
TO COMNAVSEASYSCOM WASHINGTON DC//
COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
INFO CNO WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
USS (SHIP NAME)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/(SUPERVISING AUTHORITY)//
SUBJ/(SUBS) SUBSAFE AND MATERIAL CONDITION READINESS FOR FAST CRUISE AND SEA TRIALS OF USS (SHIP NAME/HULL NO.)//
REF/A/DOC/NAVSEA /(DATE)//
REF/B/DOC/OPNAV/(DATE)//
REF/C/LTR/NAVSEA (SER NO./DATE)//(REFERENCE ADDITIONAL AUDIT REPORTS AS REQUIRED)
NARR/REF A IS NAVSEA 0924-LP-062-0010, THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF B IS OPNAVINST 9080.3 AND CONTAINS PROCEDURES FOR TESTS AND TRIALS OF NAVAL NUCLEAR POWERED SHIPS. REF C IS NAVSEA SUBSAFE CERTIFICATION AUDIT REPORT FOR USS (SHIP NAME/HULL NO.).//
RMKS/1. IAW REFS A AND B, (SUPERVISING AUTHORITY) VERIFIES THE MATERIAL CONDITION OF THOSE PARTS OF (SHIP NAME/HULL NO.) INSTALLED, REPAIRED AND/OR TESTED BY THE INDUSTRIAL ACTIVITY SATISFACTORY FOR POST REPAIR SEA TRIALS.
2. IAW REF A, (SUPERVISING AUTHORITY) REPORTS THAT ALL CAT I AUDIT RECOMMENDATIONS OF REF C HAVE BEEN SATISFACTORILY RESOLVED. THERE ARE NO SUBSAFE DEVIATIONS AND WAIVERS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. (OR LIST CONDITIONAL DEVIATIONS AND WAIVERS).
3. IAW REF A, THE STATUS OF INCOMPLETE CAT IA AUDIT RECOMMENDATIONS OF REF C IS AS FOLLOWS:
A.
B.
4. (SUPERVISING AUTHORITY) REPORTS READINESS OF USS (SHIP NAME/HULL NO.) FOR COMMENCEMENT OF FAST CRUISE. CO USS (SHIP NAME/HULL NO.) CONCURS.//
5. SUBJECT TO SATISFACTORY COMPLETION OF FAST CRUISE AND RESOLUTION OF MANDATORY DEFICIENCIES (SUPERVISING AUTHORITY) CONSIDERS USS (SHIP NAME/HULL NO.) MATERIAL CONDITION READINESS SATISFACTORY FOR COMMENCEMENT OF SEA TRIALS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AD

SAMPLE SUPERVISING AUTHORITY MESSAGE TO TYCOM AND NAVSEA CONCERNING FAST CRUISE COMPLETION AND SUBSAFE MATERIAL CONDITION READINESS FOR SEA TRIALS (SUBMARINES ONLY)

FM (SUPERVISING AUTHORITY)//
TO COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
COMNAVSEASYSCOM WASHINGTON DC//
INFO CNO WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
USS (SHIP NAME)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/(SUPERVISING AUTHORITY)//
SUBJ/(SUBS) USS (SHIP NAME/HULL NO.) FAST CRUISE COMPLETION//
REF/A/DOC/NAVSEA /(DATE)//
AMPN/REF A IS NAVSEA 0924-LP-062-0010, THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL.//
RMKS/1. IAW REF A, (SUPERVISING AUTHORITY) REPORTS USS (SHIP NAME/HULL NO.) FAST CRUISE SUCCESSFULLY COMPLETED AT (TIME, DATE).
2. NO MANDATORY DEFICIENCIES FOR SEA TRIALS HAVE BEEN IDENTIFIED. THERE HAVE BEEN NO RECS OPENED AND NO SUBSAFE DEVIATIONS AND WAIVERS PROCESSED SINCE THE START OF FAST CRUISE. (OR, REPORT ANY MANDATORY DEFICIENCIES DISCOVERED WITH CORRECTIVE ACTION, AND IF RECs AND/OR DEVIATIONS AND WAIVERS WERE PROCESSED SINCE THE START OF FAST CRUISE, REPORT ALL RECS OPENED SINCE THE START OF FAST CRUISE ARE CLOSED AND/OR ALL SUBSAFE DEVIATIONS AND WAIVERS PROCESSED SINCE THE START OF FAST CRUISE ARE RESOLVED.)
3. IAW REF A, THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED, AND OR TESTED BY THE INDUSTRIAL ACTIVITY IS SATISFACTORY FOR SEA TRIALS.
4. RECOMMEND COMMENCEMENT OF SEA TRIALS AS SCHEDULED. CO USS (SHIP NAME/HULL NO.) CONCURS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AE

SAMPLE SUPERVISING AUTHORITY MESSAGE TO NAVSEA CONCERNING READINESS FOR FOLLOW-ON SEA TRIALS IN CASES WHERE A PREVIOUS SEA TRIAL WAS ABORTED OR CORRECTIVE ACTIONS FOR SEA TRIAL DEFICIENCIES REQUIRE AN ADDITIONAL DEEP DIVE (SUBMARINES ONLY)

FM (SUPERVISING AUTHORITY)//
TO COMNAVSEASYSCOM WASHINGTON DC//
INFO CNO WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUB(LANT/PAC) <NORFOLK VA/PEARL HARBOR HI>//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
USS (SHIP NAME)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/(SUPERVISING AUTHORITY)//
SUBJ/(SUBS) READINESS FOR (FOLLOW-ON[(1)]) SEA TRIALS OF USS (SHIP NAME/HULL NO.)//
REF/A/RMG/(SUPERVISING AUTHORITY)/(DTG)// (APPENDIX **AC**)
REF/B/LTR/NAVSEA (SER NO./DATE)//
REF/C/DOC/NAVSEA /(DATE)//
NARR/REF A IS (SUPERVISING AUTHORITY) REPORT READINESS OF USS (SHIP NAME/HULL NO.) FOR FAST CRUISE AND INITIAL SEA TRIALS. REF B IS THE SUBSAFE CERTIFICATION AUDIT REPORT. REF C IS NAVSEA 0924-LP-062-0010, THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL.//
RMKS/1. USS (SHIP NAME/HULL NO.) RETURNED FROM (PREVIOUS[(2)]) SEA TRIALS ON (DATE).
2. BY REF A, (SUPERVISING AUTHORITY) REPORTED ALL CAT I AUDIT RECOMMENDATIONS OF REF B SATISFACTORILY RESOLVED. THERE HAVE BEEN NO INDUSTRIAL ACTIVITY RECS OPENED AND NO INDUSTRIAL ACTIVITY SUBSAFE DEVIATIONS AND WAIVERS PROCESSED SINCE (PREVIOUS[(2)]) SEA TRIALS. (OR, IF RECS OR DEVIATIONS AND WAIVERS WERE PROCESSED SINCE THE PREVIOUS SEA TRIAL, REPORT ALL RECS OPENED SINCE (PREVIOUS[(2)]) SEA TRIALS ARE CLOSED AND/OR ALL SUBSAFE DEVIATIONS AND WAIVERS PROCESSED SINCE (PREVIOUS[(2)]) SEA TRIALS ARE RESOLVED).
3. THE STATUS OF REF B INCOMPLETE CAT 1A AUDIT RECOMMENDATIONS IS (SAME AS REPORTED BY REF A OR AS FOLLOWS:).
4. IAW REF C, (SUPERVISING AUTHORITY) REPORTS THAT THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS SATISFACTORY FOR (FOLLOW-ON[(1)]) SEA TRIALS TO TEST DEPTH. CO USS (SHIP NAME/HULL NO.) CONCURS.//
BT

SUPERSCRIPT:

(1) UPCOMING TRIAL WHICH IS SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIAL, ETC).

(2) PREVIOUS TRIAL WHICH MAY HAVE BEEN COMPLETED OR ABORTED.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AF

SAMPLE SUPERVISING AUTHORITY MESSAGE TO NAVSEA CONCERNING SUBSAFE MATERIAL CONDITION TO SUPPORT URO (SUBMARINES ONLY)

FM (SUPERVISING AUTHORITY)//
TO COMNAVSEASYSCOM WASHINGTON DC//
INFO CNO WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
USS (SHIP NAME)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/(SUPERVISING AUTHORITY)//
SUBJ/(SUBS) UNRESTRICTED OPERATIONS FOR USS (SHIP NAME)//
REF/A/DOC/NAVSEA /(DATE)//
REF/B/RMG/(SUPERVISING AUTHORITY)/(DTG)// (APPENDIX **AC**)
REF/C/LTR/NAVSEA (SER NO./DATE)//
NARR/REF A IS NAVSEA 0924-LP-062-0010, THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF B IS (SUPERVISING AUTHORITY) REPORT OF USS (SHIP NAME/HULL NO.) READINESS FOR FAST CRUISE AND SEA TRIALS. REF C IS THE NAVSEA SUBSAFE CERTIFICATION AUDIT REPORT FOR USS (SHIP NAME/HULL NO.).//
RMKS/1. IAW REF A, (SUPERVISING AUTHORITY) REPORTS THE SATISFACTORY COMPLETION OF ALL SEA TRIALS, COMPLETION OF CONTROLLED DIVES, AND THE RESOLUTION OF MANDATORY SEA TRIAL DEFICIENCIES.
2. REF B REPORTED SATISFACTORY RESOLUTION OF ALL CAT I AUDIT RECOMMENDATIONS OF REF C. IAW REF A, (SUPERVISING AUTHORITY) REPORTS THAT ALL CAT IA AUDIT RECOMMENDATIONS OF REF C HAVE BEEN SATISFACTORILY RESOLVED. THERE IS NO DEFERRED SUBSAFE WORK AND THERE ARE NO SUBSAFE DEVIATIONS AND WAIVERS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. (OR LIST DEFERRED SUBSAFE WORK AND/OR CONDITIONAL SUBSAFE DEVIATIONS AND WAIVERS).
3. THE STATUS OF INCOMPLETE CAT II AUDIT RECOMMENDATIONS OF REF C IS AS FOLLOWS:
A.
B.
4. IAW REF A, (SUPERVISING AUTHORITY) REPORTS THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS SATISFACTORY FOR UNRESTRICTED FOR OPERATIONS TO TEST DEPTH.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AG

SAMPLE TYCOM MESSAGE TO NAVSEA CONCERNING FAST CRUISE AND CRITICAL REACTOR OPERATIONS (SUBMARINES ONLY)

FM TYCOM//N4//
TO COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O//
USS (SHIP NAME)//
INFO CNO WASHINGTON DC//N87//
FLTCINC//N43//
DIRSSP WASHINGTON DC (FOR SSBNS)//205//
COMSUBDEVRON FIVE SAN DIEGO CA//N3//
COMSUBGRU NO.//N5//
COMSUBRON NO.//
SUPERVISING AUTHORITY//CODES//
BT
UNCLAS //N09094//
MSGID/GENADMIN/TYCOM//
SUBJ/(SUBS) FAST CRUISE FOR USS (SHIP NAME SSN/SSBN HULL NO.)//
REF/A/RMG/ISIC/(DTG)/NOTAL//(APPENDIX H)
REF/B/RMG/SUPERVISING AUTHORITY/(DTG)//(APPENDIX **AC**)
REF/C/RMG/NAVSEA/(DTG)//(APPENDIX **AB**)
REF/D/RMG/USS (SHIP)/DTG//(APPENDIX **AL**)
NARR/REF A IS ISIC MSG TO TYCOM ON CREW CERT. REF B IS (SUPERVISING AUTHORITY) TO NAVSEA AND TYCOM ON SUBSAFE AND MATERIAL CONDITION READINESS. REF C IS NAVSEA MSG TO TYCOM ON SUBSAFE MATERIAL CONDITION READINESS AND DEPTH RECOMMENDATION FOR SEA TRIALS. REF D IS USS (SHIP'S NAME) MSG TO COMMENCE FAST CRUISE.
RMKS/1. REFS A, B AND C REPORTED SATISFACTORY COMPLETION OF CREW/MATERIAL CERTIFICATION TO SUPPORT FAST CRUISE AND SEA TRIALS. REF D REPORTED SHIP AND CREW READY TO PROCEED ON SEA TRIALS WITH EXCEPTIONS NOTED AND REQUESTED PERMISSION TO COMMENCE FAST CRUISE.
2. FOR NAVSEA 08; REQUEST AUTHORIZATION FOR USS (SHIP NAME SSN/SSBN HULL NO.) TO CONDUCT CRITICAL REACTOR OPERATIONS FOR FAST CRUISE AND SEA TRIALS.
3. FOR CO USS (SHIP NAME SSN/SSBN HULL NO.); PERMISSION GRANTED TO START FAST CRUISE UPON RECEIPT OF NAVSEA AUTHORIZATION TO TAKE REACTOR CRITICAL//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AH

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING SEA TRIALS DEPTH AUTHORIZATION (SUBMARINES ONLY)

FM COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
TO USS (SHIP NAME)//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB(LANT/PAC)//
SUBJ/(SUBS) USS (SHIP NAME/HULL NO.) SEA TRIALS DEPTH AUTHORIZATION//
REF/A/RMG/COMNAVSEASYSCOM/(DTG)//(APPENDIX **AB**)
REF/B/RMG/SUPERVISING AUTHORITY/(DTG)//(APPENDIX **AC**)
REF/C/LTR/NAVSEA (SER NO./DATE)//
REF/D/LTR/COMSUB(LANT/PAC)/(SER NO./DATE)//
NARR/REF A IS NAVSEA SUBSAFE MATERIAL CONDITION READINESS REPORT AND SEA TRIALS DEPTH RECOMMENDATION FOR USS (SHIP NAME/HULL NO.). REF B IS (SUPERVISING AUTHORITY) REPORT OF USS (SHIP NAME/HULL NO.) FAST CRUISE COMPLETION AND READINESS FOR SEA TRIALS. REF C CONCURRED IN THE SEA TRIAL AGENDA FOR USS (SHIP NAME/HULL NO.). REF D APPROVED THE SEA TRIAL AGENDA FOR USS (SHIP NAME/HULL NO.).//
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
2. THIS MESSAGE CONFIRMS THAT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN THE SUBSAFE CERTIFICATION BOUNDARY OF USS (SHIP NAME/HULL NO.) HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS (SHIP NAME/HULL NO.) IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH (SUBJECT TO ANY RESTRICTIONS IN PARA 2 OF REF A IF ANY ARE IDENTIFIED).
3. REF B REPORTED COMPLETION OF FAST CRUISE AND READINESS TO PROCEED ON SEA TRIALS.
4. USS (SHIP NAME/HULL NO.) IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO (SPECIFIED) DEPTH IAW THE SEA TRIAL AGENDA CONCURRED IN BY REF C AND APPROVED BY REF D.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AI

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING URO (SUBMARINES ONLY)

FM COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
TO USS (SHIP NAME)//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB(LANT/PAC)//
SUBJ/(SUBS) UNRESTRICTED OPERATION OF USS (SHIP NAME/HULL NO.)//
REF/A/RMG/COMNAVSEASYSCOM/(DTG)//(APPENDIX **AQ**)
REF/B/DOC/NAVSEA 0924-LP-062-0010//
REF/C/DOC/COMSUB(LANT/PAC) NOTE C3120//
NARR/REF A IS NAVSEA URO MSG FOR USS (SHIP NAME/HULL NO.). REF B IS THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF C CONTAINS TYCOM AUTHORIZED SUBMARINE OPERATING AND TEST DEPTHS.//
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED, AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS SATISFACTORY AND RECOMMENDED THAT USS (SHIP NAME/HULL NO.) BE AUTHORIZED TO CONDUCT UNRESTRICTED OPERATIONS TO TEST DEPTH.
2. (TYCOM) CONFIRMS THAT CERTIFICATION OF THE REMAINDER OF ITEMS NOT COVERED BY REF A WITHIN THE SUBSAFE CERTIFICATION BOUNDARY HAS BEEN SUSTAINED. ACCORDINGLY, USS (SHIP NAME/HULL NO.) IS AUTHORIZED TO CONDUCT OPERATIONS TO (SPECIFIED) DEPTH, SUBJECT TO THE FOLLOWING RESTRICTIONS: (LIST RESTRICTIONS IF THEY EXIST OR STATE "NONE").
3. CONTINUED CERTIFICATION FOR OPERATIONS TO TEST DEPTH IS SUBJECT TO COMPLIANCE WITH REF B. URO/MRC PERIODICITIES COMMENCE ON (DATE).
4. THIS MSG REMAINS IN EFFECT UNTIL INCLUDED IN A FUTURE REVISION OF REF C.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AJ

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION PRIOR TO SEA TRIALS (SUBMARINES ONLY)

FM ISIC//
TO TYCOM//N43/N402//
INFO COMSUBDEVRON FIVE SAN DIEGO CA//N4//
COMSUBGRU NO.//N4//
USS (SHIP NAME)//
BT
UNCLAS //N09094//
GENADMIN/ISIC//
SUBJ/(SUBS) USS (SHIP NAME SSN/SSBN HULL NO.) MATERIAL CERTIFICATION/ READINESS FOR SEA TRIALS//
REF/A/RMG/TYCOM/(DTG)//(APPENDIX U)
REF/B/DOC/CINCLANTFLT/CINCPACFLT/(DATE)//
REF/C/RMG/ISIC/(DTG)/NOTAL//(APPENDIX H)
REF/D/DOC/NAVSEA /(DATE)//
REF/E/DOC/NAVSEA/(DATE OF CURRENT REVISION)//
NARR/REF A IS TYCOM MSG TO USS (SHIP'S NAME) ON COMPLETION PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS. REF B IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF C IS ISIC MSG TO TYCOM ON CREW CERT. REF D IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF E IS NAVSEA, URO REQUIREMENTS MANUAL.
RMKS/1. IAW REFS A AND B, THIS MSG CERTIFIES THAT ALL WORK ACCOMPLISHED BY FORCES AFLOAT WITHIN THE SUBSAFE CERTIFICATION BOUNDARY SINCE CERTIFICATION OF REF C AND SUBSEQUENT TO FAST CRUISE HAS BEEN SATISFACTORILY COMPLETED AND RETESTED IAW REF D. CERTIFICATION REQUIREMENTS OF REF D HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY.
2. THERE ARE NO OUTSTANDING REC'S. THE FOLLOWING DEPARTURES FROM SPECIFICATION ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

3. ALL URO MRC MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF E HAVE BEEN SUCCESSFULLY ACCOMPLISHED WITHIN THE REQUIRED PERIODICITY.//
BT

NOTE: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AK

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION UPON COMPLETION OF SEA TRIALS (SUBMARINES ONLY)

FM ISIC//
TO TYCOM//N43/402//
INFO COMSUBDEVRON FIVE SAN DIEGO CA//N4//
COMSUBGRU NO.//N4//
USS (SHIP NAME)//
BT
UNCLAS //N09094//
GENADMIN/ISIC//
SUBJ/(SUBS) USS (SHIP NAME SSN/SSBN HULL NO.) MATERIAL CERTIFICATION//
REF/A/RMG/TYCOM/(DTG)//(APPENDIX U)
REF/B/DOC/CINCLANTFLT/CINCPACFLT/(DATE)//
REF/C/DOC/NAVSEA /(DATE)//
REF/D/DOC/NAVSEA/(DATE OF CURRENT REVISION)//
NARR/REF A IS TYCOM MSG TO USS (SHIP'S NAME) ON COMPLETION PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS. REF B IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF C IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF D IS NAVSEA, URO REQUIREMENTS MANUAL.
RMKS/1. IAW REFS A AND B THIS MESSAGE CERTIFIES THAT ALL WORK ACCOMPLISHED BY FORCES AFLOAT WITHIN THE SUBSAFE CERTIFICATION BOUNDARY SINCE CERTIFICATION FOR SEA TRIALS HAS BEEN SATISFACTORILY COMPLETED AND RETESTED IAW REF C. CERTIFICATION REQUIREMENTS OF REF C HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY.
2. THERE ARE NO OUTSTANDING REC'S. THE FOLLOWING DEPARTURES FROM SPECIFICATION ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

3. ALL URO MRC MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF D HAVE BEEN SUCCESSFULLY ACCOMPLISHED WITHIN THE REQUIRED PERIODICITY.//
BT

NOTE: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AL

SAMPLE SHIP MESSAGE TO TYCOM CONCERNING READINESS FOR FAST CRUISE (SUBMARINES ONLY)

FM USS (SHIP NAME)//
TO TYCOM//N43/402//
INFO CNO WASHINGTON DC//N87//
FLTCINC//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O//
DIRSSP WASHINGTON DC (FOR SSBN)//205//
SUBOPAUTH (IF OTHER THAN PARENT TYCOM)//
COMSUBDEVRON FIVE SAN DIEGO CA//N3//
COMSUBGRU NO.//N5//
COMSUBRON NO.//
SUPERVISING AUTHORITY//CODES//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS (SHIP NAME)//
SUBJ/(SUBS) USS (SHIP NAME SSN/SSBN HULL NO.) READINESS FOR FAST CRUISE//
REF/A/DOC/CINCLANTFLT/CINCPACFLT/(DATE)//
REF/B/RMG/TYCOM/(DTG)//(APPENDIX U)
NARR/REF A IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF B IS TYCOM MSG TO USS (SHIP'S NAME) ON COMPLETION PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS.
1. IAW REFS A AND B, USS (SHIP NAME SSN/SSBN HULL NO.) AND CREW ARE REPORTED READY FOR SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
   A. COMPLETION OF FAST CRUISE.
   B. REMOVAL OF SHORE SERVICE CONNECTIONS.
2. REQUEST PERMISSION TO START FAST CRUISE.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AM

SAMPLE SHIP MESSAGE TO TYCOM CONCERNING READINESS FOR SEA TRIALS (SUBMARINES ONLY)

FM USS (SHIP NAME)//
TO TYCOM//N4/40/405//
INFO COMSUBDEVRON FIVE SAN DIEGO CA//N3//
COMSUBGRU NO.//N5//
COMSUBRON NO.//
BT
UNCLAS //N09094//
MSGID/GENADMIN//USS (SHIP'S NAME)//
SUBJ/(SUBS) USS (SHIP NAME SSN/SSBN HULL NO.) READINESS FOR SEA TRIALS//
REF/A/DOC/CINCLANTFLT/CINCPACFLT/(DATE)//
AMPN/REF A IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II//
RMKS/1. FAST CRUISE COMPLETED (TIME AND DATE).
2. IAW REF A, USS (SHIP NAME SSN/SSBN HULL NO.) AND CREW REPORTED READY TO PROCEED ON SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
A. REMOVAL OF SHORE SERVICE CONNECTIONS.
B.
3. MATERIAL CONDITION SUPPORTS ADEQUATE CREW REST FOR UNDERWAY AT (TIME AND DATE).
4. REQUEST PERMISSION TO COMMENCE SEA TRIALS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AN

SAMPLE TYCOM MESSAGE CONCERNING RESUMPTION OF SEA TRIALS COMPLETION PREREQUISITES FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS DURATION (SUBMARINES ONLY)

FM TYCOM//N43//
TO COMNAVSEASYSCOM WASHINGTON DC//PMS 392/PMS350 (SSN21)/08O//
ISIC//
SUPERVISING AUTHORITY//CODES//
USS (SHIP NAME)//
INFO CNO WASHINGTON DC//N87//
FLTCINC//N43//
DIRSSP WASHINGTON DC (SSBN)//205//
SUBOPAUTH//CODES//
COMSUBDEVRON FIVE SAN DIEGO CA//N4//
COMSUBGRU NO//N4//
BT
UNCLAS //N09094//
MSGID/GENADMIN/TYCOM//
SUBJ/(SUBS) USS (SHIP NAME SSN/SSBN HULL NO.) SEA TRIAL RESUMPTION AND INDUSTRIAL ACTIVITY AVAILABILITY COMPLETION PREREQUISITES//
REF/A/RMG/TYCOM/(DTG)//(APPENDIX U)
REF/B/DOC/CINCLANTFLT/CINCPACFLT/(DATE)//
REF/C/DOC/NAVSEA /(DATE)//
NARR/REF A IS TYCOM MSG TO USS (SHIP'S NAME) ON COMPLETION PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS. REF B IS CINCLANTFLT/CINCPACFLTINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF C IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL.
RMKS/1. REF A SPECIFIED PREREQUISITES IN SUPPORT OF USS (SHIP NAME SSN/SSBN HULL NO.) FAST CRUISE, INITIAL INDUSTRIAL ACTIVITY AVAILABILITY SEA TRIALS AND COMPLETION. THESE TRIALS WERE ACCOMPLISHED AND (INDUSTRIAL ACTIVITY NAME) INDUSTRIAL ACTIVITY HAS CONDUCTED REPAIRS TO USS (SHIP NAME) REQUIRING ADDITIONAL SEA TRIALS. THIS MSG PROVIDES TO ALCON REPORTS AND AUTHORIZATIONS PREREQUISITE TO COMMENCING ADDITIONAL SEA TRIALS:

A. SUPERVISING AUTHORITY SHALL DRAFT REVISED SEA TRIAL AGENDA TO SUPPORT THE TRIALS. THIS AGENDA SHALL BE FORMALLY APPROVED BY COMSUBDEVRON FIVE (ISIC) (ACTING FOR TYCOM) AND CONCURRED IN BY NAVSEA PRIOR TO CONDUCT OF SEA TRIALS.

B. ISIC MSG REPORT TO TYCOM THAT THE MATERIAL CONDITION OF THOSE SUBSAFE CERTIFICATION BOUNDARY PARTS OF USS (SHIP NAME) INSTALLED, REPAIRED AND/OR TESTED BY SHIP'S FORCE IS SATISFACTORY IAW REF B FOR COMMENCING SEA TRIALS. (FORMAT OF APPENDIX AJ)

C. SUPERVISING AUTHORITY MSG REPORT TO NAVSEA, INFO TYCOM, THAT MATERIAL CONDITION OF SYSTEMS AND EQUIPMENTS INSTALLED, REPAIRED AND/OR TESTED BY INDUSTRIAL ACTIVITY IS SATISFACTORY FOR CONDUCT OF SEA TRIALS. AS A MINIMUM, REPORT SHOULD STATE STATUS OF ALL INCOMPLETE CAT 1A AUDIT ITEMS AND THAT ALL WORK HAS BEEN PERFORMED IAW REF B. (APPENDIX **AE**)

D. USS (SHIP NAME) MSG REPORT TO TYCOM STATING THAT CREW AND SHIP ARE READY FOR SEA TRIALS LISTING EXCEPTIONS. (FORMAT OF APPENDIX **AM**)

E. NAVSEA MSG TO TYCOM RECERTIFYING MATERIAL CONDITION OF USS (SHIP NAME) FOR SPECIFIC TRIAL OPERATING DEPTH. (APPENDIX **AO**)

F. TYCOM MSG TO USS (SHIP NAME) GRANTING PERMISSION TO CONDUCT SEA TRIALS. (FORMAT OF APPENDIX **AP**)

2. USS (SHIP NAME SSN/SSBN HULL NO.) SEA TRIALS WILL BE UNDER OPCON OF _____.

3. CO, USS (SHIP NAME SSN/SSBN HULL NO.) IS REQUESTED TO PROVIDE SEA TRIAL SITREPS AT INTERVALS OF 24 HRS OR LESS AND IDENTIFY ITEMS MANDATORY FOR CORRECTION PRIOR TO COMPLETION OF INDUSTRIAL AVAILABILITY.

4. FOLLOWING REPORTS AND AUTHORIZATIONS ARE PREREQUISITES TO INDUSTRIAL AVAILABILITY COMPLETION:

A. IAW REF C, SUPERVISING AUTHORITY MSG REPORT TO NAVSEA AND TYCOM REPORTING COMPLETION OF AUTHORIZED WORK AND CAT 1A AUDIT ITEMS LISTING EXCEPTIONS. MSG SHOULD RECOMMEND (TYPE OF AVAILABILITY) COMPLETION AND LIST PROPOSED GUARANTEE WORK ITEMS. (APPENDIX **AF**)

B. IAW REF C, NAVSEA MSG TO TYCOM CERTIFYING MATERIAL CONDITION OF USS (SHIP NAME SSN/SSBN HULL NO.) IS SATISFACTORY FOR UNRESTRICTED OPERATIONS TO DESIGN TEST DEPTH. (APPENDIX **AQ**)

C. ISIC/USS (SHIP NAME SSN/SSBN HULL NO.) MSG TO TYCOM REPORTING MATERIAL CONDITION OF SHIP AND URO MRC STATUS SUBSEQUENT TO SEA TRIALS. (APPENDIX **AK**)

D. IAW REF C, TYCOM MSG TO CO, USS (SHIP NAME SSN/SSBN HULL NO.) AUTHORIZING CONDUCT OF UNRESTRICTED OPERATIONS TO DESIGN TEST DEPTH. (APPENDIX **AI**)

5. MSGS LISTED IN PARA 1 THROUGH 4 ABOVE SHOULD BE ASSIGNED APPROPRIATE PRECEDENCE AND PARALLELED BY PHONCON TO ACTION ADDEES CITING DTG OF FORTHCOMING MSG. ALL ADDEES OF THIS MSG TO BE INCLUDED AS ADDEES ON MSG LISTED IN PARA 1 THROUGH 4 ABOVE.//

BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX AO

SAMPLE NAVSEA MESSAGE TO TYCOM CONCERNING SHIP SUBSAFE MATERIAL CONDITION AND DEPTH RECOMMENDATION FOR FOLLOW-ON SEA TRIALS (SUBMARINES ONLY)

FM COMNAVSEASYSCOM WASHINGTON DC//
TO COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
INFO CNO WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)
COMSUBRON (NO.)//
USS (SHIP NAME)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMNAVSEASYSCOM//
SUBJ/(SUBS) SUBSAFE MATERIAL CONDITION READINESS AND DEPTH RECOMMENDATION FOR (FOLLOW-ON[(1)]) SEA TRIALS OF USS (SHIP NAME/HULL NO.)//
REF/A/DOC/NAVSEA /(DATE)//
REF/B/RMG/(SUPERVISING AUTHORITY)/(DTG)//(APPENDIX **AE**)
REF/C/LTR/NAVSEA (SER NO./DATE)//
REF/D/LTR/COMSUB(LANT/PAC)/(SER NO./DATE)//
NARR/REF A IS NAVSEA 0924-LP-062-0010, THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF B IS SUPERVISING AUTHORITY REPORT OF USS (SHIP NAME/HULL NO.) READINESS FOR (FOLLOW-ON[(1)]) SEA TRIALS. REF C CONCURRED IN THE (FOLLOW-ON[(1)]) SEA TRIAL AGENDA FOR USS (SHIP NAME/HULL NO.). REF D APPROVED OF THE (FOLLOW-ON[(1)]) SEA TRIALS AGENDA FOR USS (SHIP NAME/HULL NO.).//
RMKS/1. IAW REF A, AND AS REPORTED BY REFERENCE REF B, THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED, AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS CERTIFIED SATISFACTORY FOR (FOLLOW-ON[(1)]) SEA TRIALS TO TEST DEPTH.
2. SUBJECT TO CONFIRMATION BY TYCOM THAT CERTIFICATION REQUIREMENTS OF REF A HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY, NAVSEA RECOMMENDS AUTHORIZED DIVING UNDER DELIBERATE AND CONTROLLED CONDITIONS TO TEST DEPTH IAW THE (FOLLOW-ON[(1)]) SEA TRIALS AGENDA CONCURRED IN BY REF C AND APPROVED BY REF D. (SUBJECT TO THE FOLLOWING RESTRICTIONS: LIST ANY RESTRICTIONS WHICH MAY BE APPLICABLE).
3. REQUEST NAVSEA PMS(__) BE INFO ADDEE ON ALL SEA TRIAL SITREPS.//
BT

SUPERSCRIPT:

(1) UPCOMING TRIALS WHICH ARE SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIALS, ETC.).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AP

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING FOLLOW-ON SEA TRIALS DEPTH AUTHORIZATION (SUBMARINES ONLY)

FM COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR HI)//
TO USS (SHIP NAME)//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB(LANT/PAC)//
SUBJ/(SUBS) USS (SHIP NAME/HULL NO.) (FOLLOW-ON[(1)]) SEA TRIALS DEPTH AUTHORIZATION//
REF/A/RMG/COMNAVSEASYSCOM/(DTG)//(APPENDIX **AO**)
REF/B/LTR/NAVSEA (SER NO./DATE)//
REF/C/LTR/COMSUB(LANT/PAC) (SER NO./DATE)//
NARR/REF A IS NAVSEA SUBSAFE MATERIAL CONDITION READINESS REPORT AND (FOLLOW-ON[(1)]) SEA TRIALS DEPTH RECOMMENDATION FOR USS (SHIP NAME/HULL NO.). REF B CONCURRED IN THE (FOLLOW-ON[(1)]) SEA TRIALS AGENDA FOR USS (SHIP NAME/HULL NO.). REF C APPROVED THE (FOLLOW-ON[(1)]) SEA TRIALS AGENDA FOR USS (SHIP NAME/HULL NO.).//
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED, AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS SATISFACTORY FOR (FOLLOW-ON[(1)]) SEA TRIALS TO TEST DEPTH.
2. THIS MSG CONFIRMS THAT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN SUBSAFE CERTIFICATION BOUNDARY OF USS (SHIP NAME/HULL NO.) HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS (SHIP NAME/HULL NO.) IS SATISFACTORY FOR (FOLLOW-ON[(1)]) SEA TRIALS TO TEST DEPTH (SUBJECT TO RESTRICTIONS IN PARA 2 OF REF A IF ANY ARE IDENTIFIED).
3. USS (SHIP NAME/HULL NO.) IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO (SPECIFIED) DEPTH IAW THE (FOLLOW-ON[(1)]) SEA TRIALS AGENDA CONCURRED IN BY REF B AND APPROVED BY REF C.//
BT

SUPERSCRIPT:

(1) UPCOMING TRIALS WHICH ARE SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIALS, ETC.).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AQ

SAMPLE NAVSEA MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION AND RECOMMENDATION FOR URO (SUBMARINES ONLY)

FM COMNAVSEASYSCOM//
TO COMSUB(LANT/PAC) (NORFOLK VA/PEARL HARBOR)//
INFO CNO WASHINGTON DC//
CINC(LANT/PAC)FLT (NORFOLK VA/PEARL HARBOR HI)//
(DIRSSP WASHINGTON DC FOR SSBN)//
COMSUBGRU (NO.)//
COMSUBRON (NO.)//
USS (SHIP NAME)//
(SUPERVISING AUTHORITY)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB(LANT/PAC)//
SUBJ/(SUBS) RECOMMENDATION FOR UNRESTRICTED OPERATIONS FOR USS (SHIP NAME/HULL NO.)//
REF/A/DOC/NAVSEA /(DATE)//
REF/B/RMG/(SUPERVISING AUTHORITY)/(DTG)//(APPENDIX **AF**)
REF/C/DOC/OPNAV/(DATE)//
NARR/REF A IS NAVSEA 0924-LP-062-0010, THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF B IS (SUPERVISING AUTHORITY) REPORT OF SATISFACTORY SUBSAFE MATERIAL CONDITION OF USS (SHIP NAME/HULL NO.) FOR THOSE PARTS INSTALLED, REPAIRED, AND/OR TESTED BY THE INDUSTRIAL ACTIVITY. REF C IS OPNAVINST 9110.1 AND CONTAINS POLICY FOR SUBMARINE TEST AND OPERATING DEPTHS.//
RMKS/1. IAW REF A, REF B REPORTED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED, AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS SATISFACTORY FOR UNRESTRICTED OPERATIONS TO TEST DEPTH. REF B ALSO REPORTED SATISFACTORY COMPLETION OF ALL SEA TRIALS, COMPLETION OF CONTROLLED DIVES, AND CORRECTION OF MANDATORY SEA TRIAL DEFICIENCIES.
2. IAW REFS A AND C, NAVSEA CERTIFIES THAT THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS (SHIP NAME/HULL NO.) INSTALLED, REPAIRED, AND/OR TESTED BY THE INDUSTRIAL ACTIVITY IS SATISFACTORY AND NO OUTSTANDING DEPTH LIMITING DISCREPANCIES EXIST.
3. SUBJECT TO CONFIRMATION BY TYCOM THAT REF A CERTIFICATION REQUIREMENTS HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY AND, IAW REF A AND C, NAVSEA RECOMMENDS THAT USS (SHIP NAME/HULL NO.) BE AUTHORIZED UNRESTRICTED OPERATIONS TO TEST DEPTH SUBJECT TO COMPLIANCE WITH REF A (WITH THE FOLLOWING RESTRICTIONS: LIST ANY RESTRICTIONS WHICH MAY BE APPLICABLE).
4. URO MRC PERIODICITIES REQUIRED BY REF A SHALL COMMENCE ON (DATE).//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AR

MINIMUM SEA TRIALS REQUIREMENTS FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS DURATION (SUBMARINES ONLY)

1. Sea Trial Policy. The following applies to the conduct of trials and tests associated with ships following major industrial activity availabilities, NAVSEA or Naval Surface Warfare Center, Carderock Division sponsored Trials/Tests or any other situation where the ship is requested to conduct trials or tests:

a. No test or trial event shall be conducted that requires crew intervention to avoid exceeding normal operating limits. Trial agendas will be based on the expectation that the ship will remain within the normal operating limits of the SOE and at angles less than 30 degrees.

b. The trial director must be prepared to project whether the next event might exceed normal operating limits based on the empirical results of the previous event. A run that is predicted to exceed normal operating limits should be deleted along with the more demanding runs of that sequence.

c. Any run which will result in exceeding normal operating limits of the SOE or 30 degree angles but which is essential to provide adequate test data must be specifically approved by the TYCOM. The test/trial sponsor will obtain this permission.

d. A violation of the SOE limit or exceeding a 30 degree angle, not previously approved, should be reported by unit SITREP. The TYCOM will resolve the situation.

e. Specific written approval by the TYCOM is not required to operate outside the upper limits of the SOE, i.e., shallow and fast, while conducting the following operations during Sea Trials or tests in accordance with an agenda approved by the ISIC, NAVSEA or higher authority:

(1) Conducting full power runs or cavitation curves.

(2) NAVSEA sponsored acoustic trials in accordance with Naval Surface Warfare Center, Carderock Division acoustic trial agenda.

f. In cases where troubleshooting is required, it must meet the following criteria or a formally approved change to the agenda is mandatory.

(1) The troubleshooting does not violate any policy listed in paragraphs 1.a through e of this Appendix or any other requirement of the trials agenda.

(2) The troubleshooting will not result in the ship being in a certain condition before that condition is reached during the normal testing sequence. For example, troubleshooting requiring the ship to be deeper than 200 feet cannot be done until after the deep dive. Likewise, troubleshooting requiring large angles or turn rates cannot be done until after the completion of the steering and diving operational tests and the large angle tests.

g. Each person involved in Sea Trials should be allowed to obtain a minimum of six hours of continuous, uninterrupted sleep during any 24 hour period.

2. Test Phasing. The Sea Trials should be scheduled and phased to support actions enroute to the test dive area, in the test dive area, prior to the deep dive, etc., subject to amplifying notes as follows:

a. The following tests and evolutions, as summarized in Appendix **AS**, will be carried out on the surface enroute to the area and prior to the initial tightness dive:

(1) Underway. Rig for dive. Compensate. Light off heaters to stills.

(2) Conduct operational tests of rudder in normal and emergency modes.

(3) Navigation system check. Take fixes by all electronic, and visual means and compare.

(4) Test underwater log(s) using measured mile or navigational fixes to determine accuracy.

(5) Test accuracy of all bearing transmitters and indicators. Compare sonar, visual and radar bearings.

(6) Check operation of all radars (See Note 1).

(7) Test all radio transmitters, receivers, and electronic equipment (See Notes 2 and 3).

(8) Inspect stern tube packing gland/seals and circulating water flow.

(9) Test Dead Reckoning Analyzer Indicator or Dead Reckoning Analyzer, Dead Reckoning Tracers and Revolution Per Minute (RPM) indication.

(10) Test fathometer(s) and compare with charted soundings.

(11) Run ahead at full power long enough for temperature to reach a stable value (See Note 4). After readings have stabilized, operate rudder through full throw in each direction in normal and emergency power. Time evolution and compare with design values. Check out all modes.

(12) Operate torpedo tube muzzle doors in power (See Note 5). Maximum allowable ahead speed for this ship is _____ knots.

(13) Ahead flank to back emergency .

(14) Run astern up to full power (See Note 7) for 10 minutes or to meet the intent of a more restrictive industrial activity test form. Operate rudder through full throw (measure degrees per second travel and compare with design value).

(15) Fire control system operation (See Notes 2 and 8).

(16) Check operation and accuracy of ship's gyrocompass.

(17) Check operation of magazine flooding if not tested in industrial activity (See Note 2).

(18) Rendezvous with escort. Conduct radio and sonar communications checks (See Note 9).

(19) Test all bottomside sonars.

(20) Test bow/sail and stern plane rigging and tilting in all modes.

(21) Flood variable tanks to computed compensation less a safety factor.

(22) Record megger/capacitance readings of all antennas (as appropriate).

(23) Operate trim and drain pumps (See Note 10).

(24) Test variable ballast system for proper operation.

(25) Test low pressure, normal and EMBT blow systems.

(26) Operate the Emergency Propulsion Motor for 10 minutes.

(27) Motor generator sets aligned for normal operation.

(28) Ventilate ship.

(29) Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

(30) Ensure all MBT blow systems are fully operational and in a normal line up configuration.

(31) Start atmosphere control equipment.

(32) Ship's Force instruct Sea Trial riders on the proper use of Emergency Air Breathing System.

(33) See Note 11.

b. The following tests and evolutions, as summarized in Appendix **AS**, will be carried out immediately prior to or during the initial tightness dive:

(1) Obtain navigational fix and take soundings. Maximum depth of water is 400 feet as specified in reference (s).

(2) Conduct a running dive to periscope depth. Obtain 1/3 speed trim, if practical, at periscope depth. If sea state requires deeper submergence, proceed slowly to 150 feet (160 feet for SSBN 726 Class submarines) to obtain 1/3 speed trim (See Note 12).

(3) Check operation of ship control systems, including depth indication (See Note 13).

(4) Equalize signal ejectors or launchers. Shoot pyrotechnics from each by hand and impulse methods, as applicable (See Notes 14 and 15).

(5) Communicate with escort on WQC at each depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be established before continuing (See Note 9).

(6) All hands inspect for leaks and report them.

(7) Operate all periscopes checking optics and leakage. Operate all masts.

(8) Test full throw of rudder and planes at slow speeds.

(9) Test operation of trim and drain system discharging to sea.

(10) Test all sonar equipment, including Emergency Underwater Telephone (BQC), on each hydrophone.

(11) Comply with CS/CCS test program regarding shooting of water slugs. Event is not required by the TYCOM if CS/CCS test program does not require (See Notes 14 and 15).

(12) Snorkel on each engine designed for snorkeling. Test operation of stills and air compressors (See Notes 2, 15 and 16).

(13) Operate all hull and back-up valves and equalize sea pressure on all systems designed for test depth (See Notes 15, 17 and 18).

(14) Check hovering system (See Notes 2 and 15).

(15) Shaft Seal Operations.

(16) Conduct an EMBT blow from 200 feet keel depth. Check bank pressure before and after surfacing. Surfacing with EMBT blow may be delayed to accommodate additional testing or transit as explained in Appendix **AS**.

(17) See Note 11.

(18) Test the SPM (See Note 29).

(19) Vent the fuel system after diving if system is sea pressure compensated.

c. The following tests and evolutions, as summarized in Appendix **AS**, will be carried out following the initial tightness dive and prior to the deep dive:

(1) Six hours of ISE for crew training.

(2) Charge air banks and battery as necessary. The ship may be submerged while charging air banks provided the depth of the ship does not exceed other guidelines in this instruction or those of the flooding bill or ship's operating procedures.

(3) Detach escort after initial tightness dive. Escort will then proceed to station for deep dive. Ensure that deep dive rendezvous time and location are clearly established before escort is released. The escort may be detached after completing all initial tightness dive events except the surfacing using EMBT blow to accommodate additional testing or the transit as described in Appendix **AS**.

(4) Operate IFF and ESM equipment. If possible, use aircraft (See Note 2).

d. The following tests and evolutions, as summarized in Appendix **AS**, will be carried out immediately prior to or during the deep dive:

(1) Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

(2) Line up MBT system for normal operation.

(3) Take soundings. Maximum water depth is given in reference (s). Accurately fix the ship's position within the specified dive area (reference (s)).

(4) Submerge to periscope depth and obtain slow speed trim.

(5) Obtain stop trim. Take readings and water samples required to make a check of ballasting (See Note 19).

(6) Trim ship to maintain neutral buoyancy (See Note 20).

(7) Line up propulsion plant for maximum reliability in accordance with the applicable Steam and Electric Plant Manual.

(8) Rig ship for deep submergence. All systems should be in the maximum secure condition with unnecessary sea systems isolated (See Note 21).

(9) Station additional personnel throughout the ship to inspect for leaks.

(10) At 150 feet (160 feet for SSBN 726 Class submarines), 200 feet and then 200 feet increments above one-half maximum operating depth and every 100 feet or other lesser specified increments thereafter down to the maximum authorized operating depth:

(a) Inspect for leaks.

(b) Adjust trim (See Note 20).

(c) Communicate with escort at each depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be re-established before continuing (See Note 9).

(11) At depths listed for hull valve cycling in reference (ac) (as applicable):

(a) Check accuracy of depth gauges and repeater (See Note 13).

(b) Equalize signal ejectors or launchers and conduct operational tests (See Note 14).

(c) Check shaft bearings and stern tubes for excessive heating, leakage and noise. Main shaft seals must be tested at each depth specified in reference (ac), testing one seal for 20 minutes and shifting to the other seal**. . Test the second seal for 20 minutes or until the boat is ready to go to the next depth, whichever comes first.**

(d) Cycle rudder and planes through full throw, at slow speeds, to check for binding (See Note 22).

(e) Operate all hull and back-up valves (using remote closures, as applicable, from flooding control stations) of seawater systems required to maintain propulsion and other functions vital to the ship's operation at increments of depth specified in reference (ac) (See Note 17).

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4.B. OF REFERENCE (AC). OBSERVE RESTRICTION ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4.D. OF REFERENCE (AC).

(f) Check operation of bulkhead ventilation valves and watertight doors for binding (excluding lower escape hatches).

(g) Operate trim and drain pumps, discharging to sea.

(h) Conduct operational test of torpedo tubes (See Note 14).

(i) Vent negative tank inboard (if installed) (See Notes 15 and 23).

(j) Cycle main ballast tank vents to check for binding. Main ballast tank vents will be cycled hydraulically except at test depth where they will be cycled manually.

(k) Equalize TDU with sea pressure through trim line, then cycle the muzzle valve.

NOTE: DURING SEA TRIALS DO NOT OPERATE TDUs WITH BALL VALVES BELOW 200 FEET OR TDUs WITH FLAPPER VALVES BELOW 150 FEET.

(12) At maximum authorized operating depth:

(a) Repeat item (11) (a) - Depth gauges and repeaters.

(b) Equalize signal ejectors or launchers. Shoot pyrotechnics from each by hand and impulse methods, as applicable (See Notes 14 and 15).

(c) Repeat item (11) (c) - Shafting and bearings.

(d) Repeat item (11) (e) - Hull and back-up valves.

(e) Repeat item (11) (f) - Bulkhead ventilation valves and watertight doors.

(f) Repeat item (11) (g) - Trim and drain pumps.

(g) Repeat item (11) (h) - Torpedo tubes.

(h) Repeat item (11) (i) - Negative tank.

(i) Equalize sea systems and cycle hull and back-up valves as specified in reference (ac) (See Note 17).

(j) Repeat item (11) (j) - Cycle main ballast tank vents, manually only, and check for binding.

(13) Prior to blow, visually inspect discharge of automatic drains in each EMBT quadrant for seawater leakage. Surface fully with EMBT blow from maximum authorized operating depth (not to exceed maximum depth permitted by the SOE at the initial speed required for the test). Check air bank pressures before and after blow.

(14) See Note 11.

e. The following tests and evolutions will be carried out submerged following the deep dive:

(1) Full power run (See Notes 6, 25 and 26).

(2) Steering and diving operation at full speed (See Notes 24 and 25).

(3) Steep angles - operate ship through several depth changes using large up and down angles to check operation of ship machinery (See Notes 25 and 27).

(4) Time raising each periscope and mast at maximum depth and speed for which they are designed. Check training feature where applicable.

(5) Run and observe air conditioning plants throughout trials noting deficiencies. Operate Lithium Bromide air conditioning plant to demonstrate ability to carry entire maximum existing ship's air conditioning load, or 100 percent capacity.

(6) Run and observe refrigeration plant throughout trials noting deficiencies.

(7) See Note 11.

(8) Comply with CS/CCS test program regarding shooting of water slugs and testing of torpedo tubes (See Notes 14 and 15).

f. The following tests and evolutions will be carried out on the surface following the deep dive:

(1) Note condition of periscope optics.

(2) Measure resistance to ground of all external electrical cables.

(3) Take radio antenna megger/capacitance readings (as appropriate) immediately after surfacing, again in one-half hour, and compare with readings obtained in item 2.a.(22) of this appendix.

(4) Measure resistance across and to ground from each side of all sonar hydrophones, projectors, and transducers or run applicable sonar hydrophone and transducer fault localization test. (See Note 28).

(5) Measure rodmeter coil and button resistance and coil insulation resistance to ground.

NOTES

1. Demonstrate accuracy by conducting simultaneous radar and visual plot.

2. Event is optional with regard to sequence. May be conducted at any time during Sea Trials and is not a prerequisite to deep dive. If listed with initial tightness dive events, completion is not mandatory prior to proceeding with remainder of trials.

3. Test on all possible antenna combinations including emergency antennas and emergency radio equipment.

4. Log RPM, ship's speed, temperatures, pressures, etc. Refer to reference (u) regarding depth of water.

5. If CS/CCS test program does not specify ship's speed, conduct with ship at maximum ahead speed.

6. The full power run with an ahead flank bell is to be terminated with a back emergency bell, consistent with current Main Propulsion Operating Limits (shaft torque is not a limiting factor in this test). The duration of the back emergency bell will be limited to 45 seconds, to be followed immediately by an appropriate ahead bell. The 45 second limit will:

a. Standardize the crashback requirements throughout the submarine force.

b. Provide a backing transient similar to that experienced during a stern plane jam.

c. Be short enough that no ship will gather sternway.

7. Full power run astern to be consistent with backing pressure limitations on plane and rudder rams and within the main engine limits of the applicable Steam and Electric Plant Manual..

8. As required by Underway Consolidated Operability Test, check target designation system, alignment of sensors to bench marks and transmissions to receivers. Determine lost motion. Run test problems on position keeper and angle solver, etc. Conduct transmission checks to tubes.

9. In the execution of any Sea Trial, whether escorted or not, submarine COs are reminded of their responsibility to communicate with escorts and/or shore authorities within prescribed, previously agreed upon, time limits to avoid initiation of inadvertent lost contact or submarine disaster procedures.

10. Pumps should be tested in industrial activity, prior to Sea Trials, to determine that they can pump against a test depth head.

11. Additional requirements may be imposed at the discretion of the CO.

12. Use conservative angles and speed on initial dive.

13. Compare all depth and pressure gauges; check operation of planes and rudder in all modes, etc. Depth and pressure gauges should be checked as soon as the next specified depth is reached.

14. Integrity of torpedo tubes, launchers and signal ejectors shall be established by admitting sea pressure through equalizing lines or flooding connection and the muzzle doors operated before conducting operational tests. Shoot water slugs from torpedo tubes as required by CS/CCS test program down to ship/torpedo tube limiting depth, whichever is less. Shoot pyrotechnics from signal ejectors or launchers on initial tightness dive and at test depth on deep dive.

15. If major structural modifications were accomplished, those seawater systems which are not required for normal safe operation of the ship at test depth but which have been designed for and may be subjected to test depth pressure should not be subjected to submergence pressure during the initial dive to any specified depth, e.g., blown sanitary tanks. If major structural modifications were not accomplished, those sea water systems which are not required for normal safe operation of the ship at test depth, but which have been designed for and may be subjected to test depth pressure, may be equalized and operated on the initial dive to test depth (See reference (ac)).

16. Check operation of electrodes, head valve and each snorkel safety circuit. Demonstrate operation of air compressors and stills, if possible, while snorkeling.

17. Depth increments for cycling vital sea valves are as set forth in reference (ac).

18. This evolution (initial operation of hull and back-up valves in fully submerged condition) at depths other than specified in reference (ac) is intended for crew training and is not technically required. Evolution may be abbreviated or deleted on case basis with concurrence of the embarked TYCOM representative.

19. Stop trim to be conducted at the most desirable time during the trials.

20. Deep dive should be conducted using moderate speed and constantly adjusting trim at depths indicated in paragraph 2.d.(10) in this Appendix to maintain neutral buoyancy. Moderate speed shall be defined as that range of speed that allows the ship optimum recovery (as shown on recovery curves) if loss of stern plane control and/or flooding occurs.

21. Reference (ac) prescribes procedures for system operation during deep dive.

22. Cycling of rudder and planes through full throws should be limited to test depth minus 100 feet.

23. Test to demonstrate the ability of the tank to withstand external pressure.

24. At maximum safe speed, operate the rudder and planes through full throw in both directions in normal and emergency power. Time evolutions and check against design values.

25. Note that the required sequence of events is initial dive, deep dive, full power run submerged, back emergency, then high speed maneuverability and steep angle tests.

26. Run full power submerged for at least two hours. CO may schedule full power run for four hours if he deems it necessary. Submarine depth during the submerged full power run should be consistent with the SOE, based on the EMBT blow from maximum authorized operating depth being previously accomplished. Those ships which are limited in depth should conduct full power trials at a depth not to exceed maximum operating depth minus 100 feet.

27. Completion of full power, back emergency and deep dive runs are prerequisites for high speed maneuverability and steep angle tests. Initial high speed ship control tests, steep angle tests and exercises during major casualties shall be conducted in water that does not exceed one and one-half times design test depth.

28. The spherical array need not be done if an array purge or power into the array measurements are scheduled at a later date.

29. The following table summarizes SPM limitations:

TABLE 1. SPM Limitation Table

Operational Cycle	Extend	Retract	Train	Operate*	Drag*
Sea Trials (Post Overhaul, New Construction	200 Ft 5 Kts	200 Ft 5 Kts	200 Ft 5 Kts	200 Ft 5 Kts	200 Ft 10 Kts
Operational Submarines (Hydraulic Units)	200 Ft 5 Kts	200 Ft 5 Kts	Test Depth 5 Kts	Test Depth 5 Kts	Test Depth 10 Kts
Operational Submarines (Electro-Mechanical Units)	Test Depth 5 Kts	Test Depth 5 Kts	Test Depth 5 Kts	Test Depth 5 Kts	Test Depth 10 Kts

* **Do not violate the SOE of the ship.**

Ref: NAVSEA MSG 282003Z June 88

APPENDIX AS
SUMMARY OF SIGNIFICANT POST REPAIR SEA TRIAL REQUIREMENTS (SUBMARINES ONLY)

SEA TRIALS	INITIAL TIGHTNESS DIVE	PRE-TRANSIT VALVE CYCLING (Optional)***	TRANSIT	DEEP DIVE
Policy Reference	Appendix **AR** Paragraph 2.b.	Appendix **AR** Paragraph 2.b.	Appendix **AR** Paragraph 2.c.	Appendix **AR** Paragraph 2.d.
Start Depth	Surface	Surface to 200 Ft	Surface to 400 Ft	Surface to 400 Ft
Conduct Depth	Periscope depth or about 150 Ft if sea state dictates for trim. Remaining events of Appendix **AR**, Paragraph 2.b. no deeper than 200 ft.	Immediately upon completion of initial tightness dive valve cycling in accordance with reference (ac) may be conducted to a max depth of 400 ft.	Surface to 400 Ft but not to exceed deepest depth previously escorted or valve cycling accomplished. Additional trials and testing permitted within the ISE, crew rest and other requirements of the instruction.	200 Ft increments to ¼ max Op depth, the 100 ft increments to max Op depth in accordance with Appendix **AR**, Paragraph 2.d.
Maximum Keel Depth	200 Ft	400 Ft #	400 Ft #	Maximum Authorized Operating Depth.
Finish Event	Surface from 200 Ft with EMBT blow.*	Completion of valve cycling.	Rendezvous with escort	Deep dive will be terminated with an EMBT blow from max authorized Op depth.
Escort Required	Yes**	Yes**	No	Yes
Water Depth	400 Ft in accordance with reference (s).	No deeper than water depth as specified in reference (s) for deep dive.	Unlimited.	Reference (s).

* - **May be delayed to permit additional testing, commencing pre-transit valve cycling or transit submerged. However, first surface after initial tightness dive must be by EMBT blow from 200 feet and must be conducted prior to deep dive.**

** - **An escort is required on the initial tightness dive and on subsequent first dives to any deeper depths, i.e., the first dive to any depth requires an escort. EMBT blow escort requirements given in paragraph 3.6.8.4.8 of this chapter.**

*** - **No post initial tightness dive evolution will be conducted at a depth deeper than a previous depth at which valve cycling in accordance with reference (ac) has been accomplished.**

\# - **One half test depth plus fifty feet for SSN 688 Class submarines.**

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VOLUME II

CHAPTER 4

TYPE COMMANDER MAINTENANCE AVAILABILITIES

REFERENCES.

(a) OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
(b) COMSUBLANT OPORD 2000
(c) COMSUBPAC OPORD 201
(d) NAVSEAINST C9210.30 - Procedure for Administration of Nuclear Reactor Plant Preventive Maintenance and Tender Nuclear Support Facilities Preventive Maintenance on Ships
(e) NAVSEA 0989-043-0000 - Surface Ship General Reactor Plant Overhaul and Repair Specifications
(f) OPNAVINST 4700.7 - Maintenance Policy For Naval Ships
(g) CINCLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
(h) CINCPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
(i) NAVSEAINST C9210.4 - Changes, Repairs and Maintenance to Nuclear Powered Ships
(j) CINCLANTFLTINST 4700.10 - Policies and Procedures For Fleet Technical Support (FTS)
(k) CINCPACFLTINST 4341.1 - Fleet Technical Assistance (FTA) Program
(l) DOD 5520.22 - National Industrial Security Program Operating Manual
(m) NAVSEAINST C5511.32 - Safeguarding of Naval Nuclear Propulsion Information
(n) NAVSEA 389-0288 - Radiological Controls
(o) NAVSEA S9213-33-MMA-000 - Radiological Controls for Ships

LISTING OF APPENDICES.

A Suggested Format for a Message Work Candidate
B FMAV Key Event Codes
C FMAV Milestone Schedule
D Availability Planning Message (Submarines Only)
E Pre-FMAV Message (Surface Ships Only)
F Sample TAV Funding Authorization Message
G Quarterly Reconciliation Report
H Ship to Shop Tag MAT-1 (General Use)

4.1 PURPOSE. Provide guidance for the implementation of policies set forth in references (a) through (k).

4.2 TYPE COMMANDER MAINTENANCE AVAILABILITIES.

a. Ship's Force Upkeep (Section 4.4) **of this chapter**.

b. Fleet Maintenance Activity Availability (FMAV) (Section 4.6) **of this chapter**.

c. Restricted Availability (RAV)/Restricted Availability Docking (RAD) (Section 4.7) **of this chapter**.

d. Technical Availability (TAV) (Section 4.8) **of this chapter**.

e. Voyage Repair Availability (Section 4.9) **of this chapter**.

4.3 MAINTENANCE POLICIES AND PROCEDURES.

4.3.1 Critical Path Jobs. Critical Path Jobs (CPJ) are those jobs or series of jobs that require special management attention and normally present the greatest risk to on time completion of the key event or availability. Fleet Maintenance Activities (FMA) should be judicious in designating jobs as CPJs to prevent diverting management attention from those jobs which are, in fact, critical to on time completion of the availability. Consideration shall be given to, but not limited to, the following in determining the CPJs:

a. Little or no room for delay exists.

b. Establishing plant conditions.

c. Long Lead Time Material (LLTM).

d. Complexity of job or special skills or resources required.

e. Significant test requirements.

f. Not previously accomplished by FMA (alterations, etc.).

4.3.2 Work Sequence Schedule. The Work Sequence Schedule (WSS) is an integrated timeline (Pert Chart, Gantt Chart, etc.) that includes plant conditions, major work steps, tests and recertification used to identify and progress CPJs. WSS should include:

a. Staging.

b. Establishing plant conditions.

c. Issuing work procedures.

d. Identifying major production steps.

e. Testing/Recertification.

f. Closing out work procedures.

4.3.3 Submission of Work Candidates.

4.3.3.1 Documenting Requests. Requests by Ship's Force for corrective maintenance assistance or support equipment from outside activities will be appropriately documented on OPNAV 4790/2K/2L forms or message work candidate in accordance with paragraph 4.3.3.2 **of this chapter**, and prioritized in accordance with reference (a). The work candidate will be promptly forwarded to the Type Commander (TYCOM) for aircraft carriers, Regional Support Group (RSG) Maintenance Document Control Office (MDCO) for Surface Force ships, and Immediate Superior In Command (ISIC) for submarines. The description of the deficiency or support requested and the action desired shall be complete and clear. This description must be in sufficient detail to allow FMA personnel to plan, obtain parts and assemble the correct tools. **The work candidate will be a stand alone document.**

4.3.3.2 Message Work Candidates. Messages shall be used at every available opportunity to notify the FMA as early as possible. This concept is particularly applicable to ships in transit between FMAs, and ships scheduled to return to port shortly before starting a FMAV. Accordingly, ships should submit message work candidate requests to the parent TYCOM/RSG/ISIC, information copy to the tending FMA and tending squadron/RSG (if different), for items of this type. Where the change of FMA occurs coincident with a change in Operational Control, the (new) tending squadron/RSG should be action addressee for the message, with both the parent TYCOM/RSG/ISIC and (new) FMA as information addresses. Appendix A of this chapter provides the format for a message work candidate.

4.3.4 Fleet Maintenance Activity Radiological Controls Support. In order to fully use the FMA radiological controls resources, Ship's Force shall request FMA radiological support for their jobs that involve significant radiological controls. The following guidelines apply:

a. FMA will provide full radiological control support including material, surveys, supervision and instructions for radiological aspects of the job.

b. FMA will provide mock-up training, when necessary, for Ship's Force personnel performing the actual work.

c. Ship's Force jobs which fall into this category include, but are not limited to, retention tank (or equivalent) inspection, nuclear instrument detector replacement, and primary plant venting or draining evolutions.

d. As an example, during a retention tank inspection, an FMA would:

(1) Construct and certify the containment tent.

(2) Conduct the necessary pre-job, in process and post-job surveys.

(3) Train Ship's Force personnel in the use of air fed hoods.

(4) Provide radiological monitoring.

(5) Review and comment on the Ship's Force work procedure.

e. The FMA should develop standard radiological work procedures to be used in developing Formal Work Procedures (FWP)/Controlled Work Packages (CWP) in support of Ship's Force jobs. The service of the Intermediate Maintenance Activity Nuclear Planning Yard should be used, when necessary, to formulate these work procedures.

4.3.5 Responsibilities. Responsibilities for the Maintenance Policies and Procedures for TYCOM scheduled availabilities are as follows:

a. TYCOM (aircraft carriers)/RSG (Surface Force ships)/ISIC (submarines).

(1) Coordinate scheduling of availabilities at FMAs (with TYCOMs).

(a) Monitor corrective maintenance action taken by FMA.

(b) Schedule and conduct inspections of Forces Afloat.

(c) (Surface Ships only) Issue Pre-FMAV message.

(d) Monitor progress of FMA.

(2) Coordinate work loading of all FMAs.

(3) Initiate the required budgetary actions for funding FMAVs.

(4) Ensure all authorized alterations are identified by priority based on material availability.

(5) Identify the routine package to be accomplished based on Master Job Catalog (MJC) review.

(6) Screen and forward the complete prioritized work package to the FMA.

(a) Rescreen and assign rejected work candidates.

(b) Process all late work as required.

(7) Review results of scheduled monitoring inspections and testing that could result in significant new work or could impact scheduled work.

(8) Identify outside activities and associated support requirements.

(9) Identify required special evolutions associated with Pre-Overseas Movement availabilities and pre-availability test and inspection requirements.

(10) Conduct Work Definition Conference (WDC), integrate recommended FMA Key Event schedule.

(11) Conduct Pre-Arrival Conference (PAC).

(12) (Submarines only). Ensure all Periodic Maintenance Requirement (PMR)/Unrestricted Operation (URO) maintenance actions intended for accomplishment during FMAV are identified.

(13) Issue availability planning message.

(14) (Submarines only). Send a Sea Trials Support Services message to specify Deep Submergence Rescue System "modified-alert" requirements in accordance with Volume II, Chapter 3, Appendix D of this manual.

(15) (Submarines only). Provide updated Sea Trials status by telephone to Commander, Submarine Development Squadron (COMSUBDEVRON) FIVE if Deep Submergence Rescue System "modified-alert" support services are in use.

b. FMA.

(1) Develop recommended Key Event schedule and present to the TYCOM/ISIC/Ship’s Force.

(2) Conduct shipchecks and order required material.

(3) Recommend rejected work candidates to the TYCOM/RSG/ISIC, as applicable.

(4) Develop strategy for calibration of gages, instruments and tools.

(5) Review Current Ship's Maintenance Project (CSMP) Type Availability (T/A) 2 items. Identify and order LLTM.

(6) Review FMAV work package, write FWPs/CWPs, identify CPJs and develop a WSS to aid in tracking and coordination of all work.

(7) Conduct arrival conference.

(8) Conduct daily and weekly meetings.

(9) Issue Departure and Assessment report, (paragraph 4.6.7.e **of this chapter** refers).

c. Ship's Commanding Officer (CO).

(1) Prioritize all deferred maintenance actions intended for accomplishment during FMAV and submit to the ISIC/TYCOM.

(2) Ensure all Ship's Force maintenance actions scheduled for FMAV are identified and submitted to ISIC (if required).

(3) Develop a strategy for calibration of gages, instruments and tools.

(4) Publish a policy concerning number of duty sections, liberty, ship cleanliness, tagout procedures, tank closeout and blanking of otherwise exposed fluid systems, waveguide and air systems before the availability starts.

(5) Assign an Officer/Chief Petty Officer to serve as the Availability Coordinator, responsible for coordinating the completion of all pre-availability and availability milestones.

4.3.5.1 Assigning Fleet Maintenance Activity/Ship's Force Maintenance Responsibility. The TYCOM/RSG/ISIC assigns work responsibility for each maintenance item in an FMAV work package. The assignment of work responsibility will be such that split responsibility between two organizations does not occur for the same unit task on a maintenance action. The following guidelines apply:

a. Except as provided below, interference removal for a FMA job will be conducted by Ship's Force.

b. The FMA will remove all controlled system interference as defined in Volume V, Part I, Chapter 2 of this manual and Ship's Force will remove all other interference. Organizations shall not split responsibility on this type work. If an organization has the responsibility to repair an item of this type, that organization will remove, repair, and reinstall the component. The exception to this guidance is for components that are within the capability of Ship's Force to remove and deliver and meet the "ship to shop" criteria below, or are more economically removed, shipped and reinstalled after FMA shop repair by Ship's Force.

c. For FMA work on ship systems and components, ISIC/FMA/Ship's Force shall agree upon responsibility for non-controlled interference removal.

d. The following are examples of maintenance actions requiring FMA shop work which will be assigned as "ship-to-shop":

(1) Calibration and repair of portable equipment, removable gages, and rack-out electronic equipment/meters.

(2) Manufacture of components which do not require fit-up in a larger assembly, or that are fabricated with a sample provided by Ship's Force.

(3) Small flanged or bolted valves and operators sized 2.5 IPS and below.

(4) Small components such as pumps, motors, controllers, deck plates, access covers and lockers.

4.3.6 Key Event Schedule. A Key Event schedule for each FMAV of four weeks or greater shall be developed by the ISIC/TYCOM, FMA and tended ship in advance of the scheduled FMAV. These Key Event schedules shall be maintained up to date and presented at weekly management conferences. The schedule of events may be modified by the ISIC, TYCOM and FMA to suit the management scheme at individual FMAs. Appendix C of this chapter is a general list of FMAV Key Event codes to be used in developing Key Event schedules.

4.3.7 Shipchecks. The FMA shall conduct shipchecks, if the tended ship is available, to verify the scope of work, identify interference, obtain equipment technical data, identify shipping (rigging) paths, verify system/equipment configuration, and obtain additional problem identification data from Ship's Force. Shipchecks shall be conducted as early in the planning phase as possible.

4.3.8 Late Work. The complete FMA FMAV work package is defined and agreed upon at the WDC (PAC for submarines). This constitutes the routine work cut-off date. Late work submitted after the WDC/PAC should be controlled by the RSG/ISIC/TYCOM to only PRIORITY-One and PRIORITY-Two jobs, and should not exceed five percent growth of the total FMAV Work Package. The RSG/ISIC/TYCOM will take appropriate actions to make job tradeoffs, defer jobs to a subsequent FMAV, or seek outside assistance to conduct the work.

4.3.9 Availability Scheduling. An integral part of the Fleet's ship maintenance program is the formally scheduled FMAV. FMAVs are scheduled by the TYCOM and ISIC as an integral event with ship's operations, inspections and other core requirements as required by references (b) and (c). While the FMAV pattern described in this chapter may not exactly fit the operating schedule of all ships, the basic FMAV planning and execution principles apply to all types of FMAVs regardless of ship type.

4.3.9.1 Planning Fleet Maintenance Activity Availability. This one week FMAV is used as a planning phase for the regular FMAV, and should be scheduled approximately four weeks prior to (immediately following the WDC) the start of the regular FMAV. Crew training, assist visits and major ship certification inspections (Quality Assurance (QA), Weapons Certification, etc.) may be conducted during this availability.

a. Items to be accomplished during this one week FMAV include:

(1) Mission or underway limiting repairs.

(2) Pre-planning for the upcoming regular FMAV (e.g., shipchecks, work package preparation, material ordering, staging plans, etc).

(3) Development of an integrated work schedule to include Ship's Force work, FMA work, Performance Monitoring Team (PMT)/Machinery Condition Analysis (MCA)/Material Condition Assessment (MCA) feedback monitoring and other work/evolutions.

b. (Submarines only). Similar planning efforts shall be applied during a current FMAV for future FMAVs for SSBN 726 Class submarines.

4.3.9.2 Regular Fleet Maintenance Activity Availability. This FMAV is the availability during which significant work is accomplished to maintain the highest possible state of material readiness for all ships. Submarines shall receive one (five week) regular FMAV each quarter, (once each patrol cycle for SSBN 726 Class submarines) and surface ships shall receive a minimum of one (three to four week) regular FMAV semi-annually, except when deployed to Areas of Responsibility without FMA support.

a. The following Fleet guidelines apply for planning and executing the regular FMAV:

(1) The regular FMAV requirement is mandatory. It cannot be deferred or deleted without TYCOM (N43) concurrence.

(2) Major ship certification inspections or assist visits shall not be scheduled during this period. When required, Dock Trials and Fast Cruise may be scheduled into the end of this FMAV period, but Sea Trials will be conducted after completion of the FMAV.

b. Aircraft Carriers do not follow the pattern described in paragraph 4.3.9.2.a **of this chapter** but should be assigned a concurrent FMAV during each industrial availability period.

4.4 SHIP'S FORCE UPKEEP.

a. Ship's Force Upkeep availability is a scheduled period in which the ship is predominately conducting self maintenance in accordance with reference (a), training, supporting inspections by outside activities, and performing routine shipboard evolutions.

b. Ship's Force Upkeep availability can be accomplished at sea when the ability of the ship to perform its assigned missions and tasks is **not** affected and the work is accomplished onboard the ship.

c. Scheduled Upkeep periods shall **not** be interrupted for other than emergency reasons.

4.4.1 Upkeep Work Planning.

4.4.1.1 Planning Sources. The upkeep work package shall be developed using three sources:

a. Planned Maintenance System (PMS) shall be scheduled in accordance with reference (a).

b. Reactor Plant PMS shall be scheduled in accordance with reference (d).

c. CSMP will be reviewed to ensure scheduling and accomplishment of all work which is within Ship's Force capability.

4.4.1.2 Ship's Force Planning Actions.

a. Review all Ship's Force screened CSMP work candidates and identify those items to be accomplished within the scheduled upkeep period.

b. Identify CPJs in accordance with paragraph 4.3.1 **of this chapter**.

c. Develop a WSS in accordance with paragraph 4.3.2 **of this chapter** to aid in tracking and sequencing CPJs.

d. Establish strategy for Ship's Force calibration of gages, instruments, and tools based on the Calibration Recall List.

e. Develop FWPs and CWPs, as required, in accordance with Volume V, Part I, Chapter 2 of this manual.

4.4.2 Upkeep Work Execution. Duty section, division meetings, and/or shift briefings will be conducted daily and/or prior to watch relief, as applicable, to discuss current status of work and projected work progress expected for the period covered. The status and projections will be based on CPJs and the WSS.

4.4.3 Upkeep Work Completion.

4.4.3.1 Management Closeout Procedures.

a. Upon completion of repairs, FWPs and CWPs will be closed out in accordance with Volume V, Part I, Chapter 2 of this manual.

b. Update CSMP.

4.4.4 Dock Trials/Fast Cruise/Sea Trials. Dock Trials, Fast Cruise and Sea Trials shall be conducted, as required. Sample agendas in Volume II, Chapter 3 of this manual may be modified, as necessary, to ensure the equipment which was worked during the upkeep is exercised prior to at sea operation.

4.4.5 Ship Certification Prior To Underway (Submarines Only). Tended ship and FMA provide the ISIC a written report of ship's certification continuity prior to underway in accordance with Volume V, Part I, Chapter 5 of this manual.

4.5 CATEGORIES OF FLEET MAINTENANCE ACTIVITY AVAILABILITIES.

a. Regular ("A"). An inport period assigned to a ship for the uninterrupted accomplishment of maintenance by an FMA and/or in conjunction with Ship's Force work.

(1) Regular FMAVs may include ship-to-shop and onboard FMA work.

(2) Regular FMAVs will be scheduled in accordance with paragraph 4.3.9 **of this chapter**.

b. Ship-to-Shop ("S"). A scheduled availability for repairs not considered emergency in nature and not requiring onboard work by the FMA. Ship-to-Shop work shall be limited to only that which Ship's Force delivers to the FMA shop and picks up when complete.

(1) Due to the limited scope of Ship-to-Shop FMAVs, the procedures for planning and execution of FMAVs of paragraphs 4.6.1. (Planning) and 4.6.5 (Execution) **of this chapter** may be modified as appropriate.

(2) Ship-to-Shop FMAVs have no required periodicity or duration and will be scheduled on an as required basis.

c. Concurrent ("C"). A concurrent FMAV may be assigned for the accomplishment of FMA Ship-to-Shop items and shipboard repairs during industrial availabilities, for previously deferred work **not** included in the industrial activity availability work package or those jobs designated for Forces Afloat accomplishment but beyond the capability of Ship's Force. If assigned a concurrent FMAV the FMA may cancel the conference schedule described in this chapter and in their place participate in the industrial activity availability conferences described in Volume II, Chapter 3 of this manual.

d. Voyage Repair ("Z"). An unscheduled availability solely for repair activity accomplishment of corrective maintenance on mission or safety essential items necessary for a ship to deploy or to continue on its deployment. The availability may be accomplished inport or at sea. Industrial/FMA Fly Away Teams may be required to accomplish the repairs.

e. Planning Availability ("P"). A scheduled one week planning availability will normally be scheduled approximately four weeks prior to a scheduled regular FMAV. The purpose of the planning availability is to allow the FMA and other activities scheduled to perform maintenance during the regular FMAV to conduct shipchecks and job scoping early enough to write required FWPs/CWPs, order material, and develop a cohesive plan for the regular availability. Only underway limiting repairs (C4/C3 Casualty Reports (CASREP)) should be accomplished during a planning availability.

4.6 FLEET MAINTENANCE ACTIVITY AVAILABILITY.

4.6.1 Fleet Maintenance Activity Availability Planning. Thorough, detailed planning is an absolute prerequisite to effective FMAV execution. Effective FMAV management begins well before the ship arrives with material procurement and job planning. Appendix F of this chapter is a typical FMAV Milestone Schedule to be used by all activities involved in planning and executing the availability.

4.6.1.1 Fleet Maintenance Activity Availability Planning Sources. A significant portion of the FMAV Work Package can be identified in advance from five basic sources:

a. Ship's CSMP. This document contains FMA work items deferred during previous maintenance availabilities as the result of inadequate material support, outstanding Departures from Specifications, dry dock requirements, etc. To ensure the CSMP accurately reflects required ship's maintenance, the ISIC Material Officer/TYCOM will review each ship's CSMP in detail with the ship prior to every maintenance availability. The ISIC/TYCOM Maintenance and Material Management (3-M) Coordinator and MDCO should provide technical assistance and training to facilitate CSMP updates.

b. Ship's Force Planned Maintenance. Ship's Force shall conduct a review of PMS and Reactor Plant PMS requirements and ensure all maintenance actions are identified.

c. (Submarines only). PMR/URO Tape. Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity provides a quarterly tape of scheduled PMR/URO maintenance requirements for each ship, as applicable. The ISIC will load these requirements into each ship's CSMP for a specific FMAV.

d. Alterations (Ship Alterations (SHIPALT), Machinery Alterations (MACHALT), Alteration and Improvements (A&I), etc.). The TYCOM/RSG MDCO/ISIC will enter alterations on the ship's CSMP which the TYCOM has authorized for accomplishment. The TYCOM/RSG/ISIC calls out alterations for a specific FMAV based on material availability and FMA capacity as identified by the FMA. Within funding constraints and TYCOM guidance, all alterations authorized on the TYCOM Alteration Management System (TAMS)(Submarine Force only)/Fleet Modernization Program (FMP) are candidates for accomplishment during each FMAV.

e. Work Routines. A set of standard routines from the MJC should be planned for every FMAV. The MDCO, TYCOM/RSG, tailors each FMAV routine package to the needs of the ship by calling out additional routines to document periodic, interim dry docking, URO maintenance (as applicable), and calibration recall requirements, as appropriate.

4.6.1.2 Type Commander/Regional Support Group/Immediate Superior In Command Planning Actions. The following actions will be taken by the TYCOM/RSG/ISIC in planning an FMAV.

a. Work Package Submission. Ensure that tended ships submit FMAV work packages as scheduled in accordance with Appendix F of this chapter. The work package should include all of the elements listed in paragraph 4.6.1.1 **of this chapter**. Message work packages must be sent if the ship is not in port. This singular action has significant impact on the ability of both the TYCOM/ISIC and FMA to properly plan for the FMAV, and determine potential impacts on other planned work.

b. (Submarine only). PMR/URO Review. Review PMR/URO requirements and ensure all maintenance actions intended for accomplishment during the FMAV are identified and entered in the CSMP. Using the PMR scheduling system as described in Volume IV, Part III, Chapter 7 of this manual, the ISIC will request that all applicable PMR work be added to the ship's CSMP when the SUBMEPP tape is received. This work is applicable if it is prescribed for the ship and is due in accordance with the associated schedule. PMR and URO work is mandatory. **PMR requirements are to be accomplished on or before the scheduled due date listed in the SUBMEPP provided report, as contained in the TYCOM PMR scheduling system. PMR requirements which are not accomplished by their scheduled completion date will be rescheduled and identified to the TYCOM in accordance with Volume IV, Part III, Chapter 7, paragraph 7.8.3.c.(5) of this manual. UROs are** to be accomplished **by the** scheduled **due dates** or appropriate Waivers or Departures from Specifications must be requested.

c. FMP Review. Review FMP and ensure all authorized alterations intended for accomplishment during the FMAV are identified by priority based on material availability as identified by the FMA. Ensure they are properly entered into the CSMP.

d. MJC Review. Review the MJC and identify the routine package to be accomplished during the FMAV. Ensure it is properly entered into the CSMP.

e. Work Package Screening. Screen and forward the complete prioritized work package to the FMA. TYCOM/RSG/ISIC responsibilities for work package screening are established in reference (a). Additional specific requirements are:

(1) Ensure work candidates meet the criteria for FMA level work and are correctly prioritized in accordance with reference (a).

(2) If the FMA assistance requested is for use of FMA facilities or technical guidance in order for Ship's Force to accomplish planned or corrective maintenance, the submitting ship and MDCO/TYCOM should be advised to use MJC Routine N0000EXCNA740, (Facilities for Ship's Force Work).

(3) If a work candidate is received in message format, the TYCOM/RSG/ISIC shall input the message work candidate into Maintenance Data System (MDS). For a ship in transit between, the TYCOM/RSG/ISIC and a FMA (Operational Control is transferred), the parent TYCOM/RSG/ISIC must advise the TYCOM/RSG/ISIC to which the ship is reporting of the desired disposition of the message work candidate.

(4) Designate controlled work as defined in Volume V, Part I, Chapter 5 of this manual.

(5) Indicate the appropriate governing Key Event.

(6) (Submarines only). If the equipment is contained in the PMR program and the repair can possibly satisfy the PMR requirement, the ISIC will designate the work as Special Interest in Block 10, note the PMR MJC Job Control Number (JCN) in Block 49, and instruct MDCO to call out the MJC item.

(7) Enter remarks as necessary **i**n Block 49 preceded by "SQ-", and sign in Block C.

f. FMAV Funding. Establish FMAV Repair of Other Vessels (ROV) funding targets for budgeting purposes. TYCOM/ISIC will establish FMAV ROV funding targets in order to properly and responsibly administer funds, and gain optimum readiness return on each dollar invested.

g. Submarine Engineering Management, Monitoring and Fleet Support Program Office /PMT/Supervisor of Shipbuilding Newport News (SUPSHIP NN), Code 1800 MCA Review. Review scheduled Submarine Engineering Management, Monitoring and Fleet Support Program Office/PMT/SUPSHIP NN, Code 1800 MCA inspections, monitoring and testing that may result in significant new work for the FMA or Ship's Force or that may impact scheduled Ship's Force or FMA work.

h. Outside Activity Support. Identify outside activities (e.g.,Naval Surface Warfare Center, Carderock Division (NSWCCD), Alteration Installation Team, Naval Undersea Warfare Center, Supervising Authority, Fleet Technical Support Center (FTSC), Industrial Activity Tiger Team, etc.) participating in the FMAV and their associated support requirements.

i. Special Evolutions. Identify required special evolutions associated with pre-availability tests and inspections.

j. WDC. The WDC is conducted with the FMA (and Ship's Force if available) as scheduled in accordance with Appendix F of this chapter. The purpose is to identify the FMAV work package. This is accomplished through the following actions:

(1) Attendees will include the ISIC Material Officer/TYCOM Ship's Coordinator, Maintenance Planning Manager, RSG, Maintenance Manager, Production Officer, MDCO representative, FMA Division Officers, Ship's Engineer Officer, Availability Coordinator, and the FMA ship superintendent (as applicable).

(2) Assemble the proposed FMAV work package from the CSMP, PMR/UROs, FMP and MJC, as applicable.

(3) Screen the proposed work package to designate the work to be accomplished during the FMAV.

(4) Prioritized the proposed work package.

(5) Designate the CPJs.

(6) Integrate FMA recommended FMAV Key Event schedule with other ISIC/TYCOM planned events for the ship, such as weapons moves, to form the Preliminary FMAV Key Event schedule.

(7) Review scheduled PMT/MCA testing that may result in significant new work after the FMAV starts.

(8) Establish the FMAV berth for pre-staging material and support equipment.

(9) Review adequacy of available testing and support equipment needed for the FMAV.

(10) Identify other outside activities participating in the FMAV and associated support requirements.

(11) Identify required special evolutions associated with pre-availability tests and inspections.

(12) (Submarines only). Review the TYCOM/ISIC draft Availability Planning Message prepared in accordance with Appendix G of this chapter.

The result of the FMAV WDC should be an executable work package within the FMAV time frame and standard FMA capacity.

k. Rescreen Work Candidates. Rescreen and assign rejected work candidates. Notify ship of final disposition of each item.

l. (Submarines only). Issue Availability Planning Message. Approximately two weeks prior to start of the scheduled FMAV, send the Availability Planning Message prepared in accordance with Appendix G of this chapter and reviewed during the FMAV WDC, to the ship. It should describe the major work scheduled, controlling FMA and Ship's Force Key Events, PMT/MCA testing, PMR jobs scheduled, alterations to be accomplished by the FMA and Ship's Force, and any other scheduled evolutions. This message should identify the current numbers of components due or overdue from the Calibration/Weight Test Recall Program.

m. Conduct PAC. Prior to the commencement of the availability and the FMAV Arrival Conference, the ISIC Material Officer/TYCOM will convene a PAC as scheduled in Appendix F of this chapter. The conference objective is to promptly process remaining new work candidates submitted by the ship through all necessary parties, so that entry into the computer and subsequent issue of Automated Work Requests (AWR) to affected work centers. The result of the PAC should be additional work candidates fully approved, screened, estimated and prepared for direct input to the Work Package by Analysis, Record and Report Section (ARRS)/MDCO personnel. Conferees (consisting of those individuals specified in paragraph 4.6.1.2.j.(1) **of this chapter**) will:

(1) Screen new work candidates for correct priority and level of maintenance in accordance with reference (a).

(2) Designate the CPJs.

(3) (Submarines only). Identify Safety of Ship maintenance items listed in paragraph 4.3.10.3 **of this chapter**.

(4) Reach a clear understanding as to which new work will be done during the availability and, if necessary, which already scheduled work must be deferred to permit accomplishment of the new work.

NOTE: ALL WORK CANDIDATES SUBMITTED AFTER THE PAC SHALL BE SCREENED AND CONTROLLED AS LATE WORK IN ACCORDANCE WITH PARAGRAPH 4.3.8 **OF THIS CHAPTER**.

4.6.1.3 Fleet Maintenance Activity Fleet Maintenance Activity Availability Planning Actions. Concurrent with the Ship's Force planning actions stated in paragraph 4.4.1.2 **of this chapter** and TYCOM/ISIC planning actions in paragraph 4.6.1.2 **of this chapter**, the following actions will be taken by the FMA in planning an FMAV.

a. (Surface Ships only). Issue Pre-FMAV message prepared in accordance with Appendix H of this chapter.

b. Review each job screened for FMA accomplishment to:

(1) Either accept or recommend the rejection of work, depending upon the capability of the associated FMA work center(s).

(2) Determine which work must be deferred to a subsequent availability due to a lack of FMA capacity required for the work.

(3) Verify the controlled work requirements are identified in accordance with Volume V, Part I, Chapter 2 of this manual. Screen the work for special considerations such as nuclear/radiological controls, special cleanliness, SUBSAFE, prevention and control of flooding in port, nuclear/non-nuclear interface and interface with other required systems status and plant conditions for the FMAV, as applicable.

(4) Immediately advise the TYCOM/ISIC of rejected work so that alternative accomplishment can be promptly initiated, where appropriate.

c. Order LLTM to execute the assigned jobs.

d. Research appropriate plans, drawings, technical manuals and other appropriate technical information, conduct shipchecks, commence writing FWPs/CWPs, and order material required for availability work package.

e. Identify CPJs and develop preliminary WSSs in accordance with paragraphs 4.3.1 and 4.3.2 of this chapter and present at WDC.

f. Develop recommended Key Event schedule.

g. Coordinate with Ship's Force and establish a strategy for the FMA or Ship's Force calibration of gages, instruments, and tools during the FMAV based on the Calibration Recall List.

h. Attend WDC.

(1) Submit CPJs and preliminary WSS.

(2) Submit recommended Key Event schedule.

i. Review craftsman qualification status and skill proficiency to conduct the assigned work. Conduct requisite industrial skill training and proficiency mockups as necessary to accomplish the assigned jobs.

j. Attend PAC (see paragraph 4.6.1.2.m **of this chapter** for agenda).

k. Verify operability and stage test and support equipment.

4.6.1.4 Ship's Force Fleet Maintenance Activity Availability Planning Actions. Ship's Force shall take the following FMAV planning actions, as applicable:

a. Review CSMP and ensure all deferred maintenance actions intended for accomplishment during the FMAV are identified by priority and submitted to the TYCOM/ISIC.

b. Review PMS, Reactor Plant PMS, CSMP and testing requirements and ensure all Ship's Force maintenance actions scheduled for accomplishment during the FMAV are identified and submitted to the TYCOM/ISIC.

c. Submit work candidates for planning purposes to the TYCOM/RSG MDCO/ISIC on a prompt, continuous basis as maintenance requiring FMA support is identified. Identify CPJ's in accordance with paragraph 4.3.1 **of this chapter** and develop a WSS in accordance with paragraph 4.3.2 **of this chapter** to aid in tracking and sequencing CPJs.

d. Attend WDC. Identify Availability Coordinator, who will attend daily and weekly meetings and coordinate Ship's Force and FMA efforts throughout the FMAV.

e. Establish a strategy for the FMA and Ship's Force calibration of gages, instruments, and tools during the FMAV based on the Calibration Recall List.

f. Attend PAC and identify all FMA provided production and testing support equipment required to accomplish Ship's Force work, or recertify systems following Ship's Force FMA work. Submit requests for this support equipment via an OPNAV 4790/2K and/or 2L, in accordance with reference (a), at the conference. This support equipment includes the following, as applicable:

(1) Reactor Plant PMS support equipment.

(2) System hydrostatic test equipment.

(3) Calibration equipment.

(4) Special tools.

g. Identify and submit any work candidates not previously submitted for accomplishment via OPNAV 4790/2K.

NOTE: ALL WORK CANDIDATES SUBMITTED AFTER THE PAC SHALL BE SCREENED AND CONTROLLED AS LATE WORK IN ACCORDANCE WITH PARAGRAPH 4.3.8 **OF THIS CHAPTER**.

h. Attend Arrival Conference. (See agenda and tended ship actions in paragraph 4.6.5.1.b and c **of this chapter**).

4.6.2 Fleet Maintenance Activity Availability Maintenance Data System Reports. Two MDS Reports will be used as the basic FMAV automated management tools:

a. The Selected Job Management (SJM) Report by Key Event. An important management aspect of MDS is the capability of scheduling and automatically sorting jobs by Key Event. Appendix C of this chapter lists available Key Event Codes of the MDS. It is emphasized that the ISIC/FMA/Ship's Force management team can create whatever Key Events are most appropriate for each individual FMAV. The following information discusses the generation of this report.

(1) A Key Event schedule for each FMAV of four weeks or greater shall be developed by the ISIC/TYCOM, FMA and tended ship in advance of the scheduled FMAV. These Key Event schedules shall be maintained up to date and presented at weekly management conferences.

(2) The established dates of each Key Event are taken from the Key Events schedule and are entered into the MDS by the MDCO.

(3) Once the FMAV Key Event dates are input to MDS, all ships' FMA maintenance actions are sorted in this report by their assigned Key Event and Key Events are then sorted according to the dates assigned.

NOTE: THROUGH JUDICIOUS ASSIGNMENT OF KEY EVENTS TO JOBS AND REALISTIC ASSESSMENT OF KEY EVENT DATES, THE KEY EVENTS ARE USED TO ORGANIZE THE FMAV WORK ON A TENDED SHIP INTO CATEGORIES FOR COORDINATION AND TRACKING PURPOSES. EVEN REGULAR FMAVS ARE TOO SHORT TO ORGANIZE AND MANAGE ALL WORK ON KEY EVENTS ALONE. ATTEMPTING TO DO THIS WILL RESULT IN UNREASONABLE MANPOWER EXPENDITURES OVER SHORT PERIODS THAT IS CONTRARY TO FMA WORKER EFFORT CONTROL POLICIES.

b. SJM by Key Event Report Utilization. The SJM by Key Event report shall be used as the primary management report after the start of an FMAV. This report shows the status of all work assigned to the FMA for accomplishment. SJM Reports can be produced in several job sequences. Both the SJM Report by priority and Key Event should be employed. The usefulness of the SJM Report is directly related to the accuracy of input. The functional flow of MDS documentation should be developed to provide comprehensive FMAV management reports in a timely manner. Information contained in this report includes:

NOTE: FOR SHORT DURATION FMAVS (LESS THAN FOUR WEEKS) OR AT THE DISCRETION OF THE ISIC, THE SJM REPORT BY PRIORITY MAY BE USED FOR FMAV MANAGEMENT RATHER THAN THE SJM REPORT BY KEY EVENT.

(1) Job identification by the cognizant work center aboard the tended ship, the Job Sequence Number, and the noun name of the equipment.

(2) Priority of the job.

(3) Status of the job as reported by the repair work center involved.

(4) Julienne date of the status report.

(5) FMA lead and assist work centers assigned to the job.

(6) Total manhours estimated to do the work.

(7) Manhours expended as of the status date.

(8) Manhours remaining to complete the work.

(9) Required production rate or number of manhours per day required to finish the work between the date of the report and the completion date.

(10) FMAV Key Event to which the work relates and the date of that Key Event.

(11) Scheduled completion date of the work.

c. The FMA shall receive several routine reports weekly, or as specified by the Repair Officer, which provide the necessary information for manpower management and work processing.

(1) Each work center should receive a Production Report and a Repair Work Center Report.

(2) Each Ship Superintendent should receive a SJM Report for their assigned ship.

(3) The Production Officer should receive a SJM Report for all ships in a FMAV.

(4) The Production Officer should receive a FMA Performance Summary.

4.6.3 Fleet Maintenance Activity Worker Effort Control. Fleet-wide FMA manpower reporting through MDS is based on a manpower capacity standard. The capacity standard and the reporting manpower utilization indices are discussed in detail in paragraph 4.6.4 **of this chapter**. While every effort should be made to load the FMA up to this standard, with consideration to the entire FMA Mission Profile requirements, it is also prudent from Quality Control and Quality-Of-Life standpoints to have controls in place to avoid exceeding the standard on a routine basis.

4.6.3.1 Worker Effort Guidance. Worker effort control policies have been established by the TYCOM. They are executed by the ISIC and FMA Commanding Officer/Repair Officer. These policies represent an important element of the Quality Control Program and form the basis for FMA Workload Control. The following guidance concerning these policies is provided:

a. Extended periods of high workload conditions which result in continuous shift-work and overtime work for personnel should be avoided. Such conditions result in tired, potentially unsafe, inefficient workers who are more prone to make mistakes. These mistakes lead to significant rework with attendant increased repair costs, excessive repair time, poor utilization of FMA capacity, and potential serious injury.

b. FMA worker effort shall be supervised, managed and controlled at an upper limit of 50 hours per week per person in each work center. This control does not include hours associated with military duties such as watchstanding and damage control training. It does include hours spent on FMA skill training such as lectures, practical factors and mockups. FMAs will establish internal controls to minimize worker effort above this level.

c. The ISIC shall assist the FMA in maintaining the above worker effort control by rescheduling work, brokering work to other FMAs or altering tended ship schedules to allow for additional FMAV time.

d. The ISIC shall inform the TYCOM if, despite the above actions, it is necessary to exceed the worker effort control for any work center for any two consecutive weeks. The TYCOM will provide further assistance to reduce the worker-to-workload disparity.

4.6.4 Maintenance Management Performance Goals. The following maintenance management performance goals are established for the FMA Repair and Weapons Repair Departments. COs and Repair Officers are responsible for making every effort to attain these goals.

4.6.4.1 Fleet Maintenance Activity Performance Summary. The FMA Performance Summary is a compilation of manpower statistics and production indices that are cumulative on a monthly basis. The following information summarizes the content and use of this report:

a. This report is produced weekly on a cumulative basis for the current month and analyzed by the Production Officer and Repair Officer. This analysis should help determine the relative accuracy and adequacy of the manhour accounting for each work center. The data reflects how each work center is loaded with production work.

b. On the last day of the month, a complete monthly cumulative report is produced. A thorough review and analysis is conducted by the Repair Officer and Production Officer, similar to the weekly review.

c. Following review and analysis, the Repair Officer approves the data and the required reports are submitted to the TYCOM. The TYCOM in turn forwards the data to higher authority.

d. The FMA Performance Summary provides management with data to determine the capacity of the FMA for FMAV maintenance, and subsequent monitoring of the FMA maintenance effort conducted on ships. The determination of FMA capacity for ship maintenance is the gauge by which managers can evaluate FMA productivity while reviewing the report of manhour expenditures.

e. FMA capacity is a function of both total FMA manpower and the distribution of personnel within the FMA. A comparison of Repair Department manning to the manpower authorization should be conducted periodically to ensure FMA work centers are not undermanned with respect to rate, Navy Enlisted Classification (NEC), and/or number of personnel. This review may determine that local action is required to schedule formal schools leading to the NEC acquisition where shortages exist, or may dictate a temporary or permanent reassignment of resources from one work center to another.

f. Part One of the FMA Performance Summary shows the manpower distribution within the FMA. The ARRS is responsible for collecting manning information from the FMA departments and divisions as a basic input to the FMA Performance Summary. The manning level of the Repair Department is monitored to ensure that this department is properly manned across its work centers.

g. Part Two of the FMA Performance Summary provides departmental manpower usage indicators and statistics. The Productivity Index is a key indicator of FMA employment. Each Productivity Index is a ratio of production manhours expended to the production manhours available. Available manhours are computed from the number of production personnel assigned each day, assuming an eight hour work day and no more than five working days per week.

h. Part Three of the FMA Performance Summary is a breakdown of FMA manhours expended aboard each tended ship.

i. Part Four of the FMA Performance Summary shows the status of work screened for FMA accomplishment.

j. Part Five of the FMA Performance Summary provides the same manhour usage information as Part Two, but broken down by work center.

4.6.4.2 Available Production Hours. The standard FMA workday consists of eight hours of available production work each work day, five days a week. Weekends and national holidays are not considered to have available production work hours. It further requires that TYCOMs will establish policies that maximize available production hours within the context of the total FMA mission profile. The FMA CO shall implement the eight hour production work day for FMA personnel. Reduction in this available effort will be for requisite industrial training, skill qualification, facilities maintenance, and capability certification efforts needed to meet the FMA Mission Profile requirements.

4.6.4.3 Performance Indices. All factors relative to the following indices must be accurately reflected in the baseline of the FMA computer management system. These factors are:

a. Assigned Manhours. The number of personnel assigned to the FMA as production and production support, over the normal eight hour work day and the number of days tending (exclusive of weekends, holidays and days underway), comprise the "Assigned (Gross Available) Manhours".

b. Production Manhours. The manhours actually expended in the progress and completion of work requests authorized for FMA accomplishment are those expended by personnel assigned to the FMA work centers. The expended manhours by personnel from other departments are not included in the FMA indices, but are credited to other special work centers on the Performance Summaries.

c. Productive Support Ratio for the Department is defined as:

$$\frac{\text{Total Assigned Support Personnel}}{\text{Total Assigned Production Personnel}}$$

(1) A Productive Support Ratio of between 0.65 and 0.85 shall be maintained. A ratio of greater than 0.85 is indicative of an excessive number of FMA personnel assigned to non-FMA tasks. A ratio of less than 0.65 is indicative of a shortage of personnel in QA, Planning and other critical production support work centers.

d. Supervisory Ratio. The Supervisory Ratio, production personnel to permanent support personnel, must be a minimum ratio of 7:1.

e. Supply Production Support. Production work centers shall not have supply function production support personnel assigned such as Repair Parts Petty Officers. The supply support function is assigned to the Planning and Estimating and ROV work centers. When the production work centers must provide technical details for ROV supply requests, such research time shall be reported as production time against the applicable work request. Production managers must ensure the Automated Material Requisitioning system is fully utilized to preclude wasted labor by FMA personnel in copying supply data already available from the computer.

f. Department Productivity Index. The Productivity Index for the Department is defined as:

$$\frac{\text{Total Production Manhours Expended by Department Personnel for the Reported Period}}{\text{Total Production Personnel x 8 hours per day x Total Number of Days Tending for the Reported Period}}$$

(1) A Productivity Index for the department should average between 0.55 and 0.75. An index of greater than 0.75 indicates:

(a) Insufficient assignment of production personnel resulting in significant overtime work or deferral of requisite technical skill training and qualification, and proficiency or general military training.

(b) An excessive amount of overtime work caused by improper workloading of a FMA by the ISIC.

(c) Inaccurate reporting of manhours.

(d) Inaccurate accounting of assigned FMA personnel (e.g., 340 assigned personnel working and reporting production hours but only 310 shown in the computer as assigned).

g. Work Center Productivity Index. A Productivity Index for individual production work centers for the month could range from 0.25 to 1.35 with a norm of 0.85. However, if the quarterly average for a production work center is less than 0.40, the number of personnel should be reduced.

h. Repair Utilization Index. Repair Utilization Index for the Department is:

$$\frac{\text{Total Support Manhours + Expended Production Manhours}}{\text{Total Production and Support Manhours Assigned}}$$

(1) The Department Repair Utilization Index should average between 0.45 and 0.65 for the month.

i. Long-Term Non-FMA Duty Index. There are two special work center codes established to monitor the total Repair Department (10J) and Weapons Repair Department (10K), if assigned, personnel detailed to non-FMA duties for greater than 30 continuous days. These numbers should not exceed ten percent of the total assigned FMA personnel averaged for the calendar quarter.

4.6.5 Fleet Maintenance Activity Availability Execution. FMAVs are complex evolutions characterized by detailed management, closely coordinated TYCOM/ISIC, FMA and Ship's Force work, systems testing, and other intertwined evolutions such as weapons movements, diver operations and training. Successful FMAV execution requires the closest possible communications and coordinated efforts by the TYCOM/ISIC, FMA, and Ship's Force. To ensure that optimum production efforts are achieved, formal FMAV Management and Production Work Control tools and procedures have been established by the Fleet for the execution of FMAVs.

4.6.5.1 Start of a Fleet Maintenance Activity Availability - The Arrival Conference. This comprehensive conference is conducted by the FMA as scheduled in accordance with Appendix F of this chapter. The Arrival Conference purpose is to provide an executive level brief to the TYCOM/ISIC, FMA CO and tended ship's CO on the total scope of the FMAV effort and shall be conducted as follows:

a. Attendees. The Arrival Conference is hosted by the FMA and attended by the following personnel:

(1) TYCOM/ISIC Material representative(s) (recommended, as applicable, are the MDCO, Supply, Weapons, Electronic Material Officer, Maintenance Manager, and Maintenance Planning Manager).

(2) FMA representative(s) (recommended, as applicable, are the CO, Repair Officer, Planning Officer (TRIDENT Refit Facility), Production Officer, Planning and Estimating Officer, Supply Officer, Weapons Officer, Supply ROV Officer, Ship Superintendent, and ARRS Office Supervisor).

(3) Tended ship, (recommended, as applicable, are the CO, department heads, and Availability Coordinator).

(4) Site PMT/MCA Officer.

(5) Others as directed by the TYCOM, ISIC, FMA CO or tended ship's CO.

b. Agenda. The following items comprise the agenda to be covered during the Arrival Conference:

(1) Introduction of key FMA and tended ship personnel.

(2) FMAV material and funding status.

(3) Review the FMAV Key Event schedule for potential conflicts.

(4) Special evolutions scheduled during the availability.

(5) Review designated FMA and Ship's Force CPJs and associated WSS.

(6) Workload tradeoffs that have been agreed to in order to accomplish the highest priority work during the FMAV.

(7) Alterations to be accomplished.

(8) Significant material issues.

(9) Review status of outstanding Departures from Specifications, as applicable.

(10) Results of arrival inspections and PMT/MCA testing.

(11) Issue meeting schedule for the FMAV.

c. Tended Ship Actions. The tended ship takes the following actions at this conference:

(1) Submit a list of key Ship's Force personnel, including officers, Leading Petty Officers/Work Center Supervisors, QA Inspectors, Calibration Coordinator and Availability Coordinator.

(2) Verify that all known work candidates requiring outside assistance have been identified and work candidates submitted to the MDCO/TYCOM or submit known Late Work candidates for immediate screening.

(3) Discuss potential FMA/Ship's Force work interface concerns.

(4) Identify Ship's Force planned evolutions that could potentially impact the FMAV production effort.

(5) Brief the Key Events schedule for the availability. The ship's Key Events should normally be scheduled in the Availability Planning message/Pre-FMAV Message (Appendices G and H of this chapter) as applicable, concurred with by the ship on arrival and input to the MDS by the ISIC prior to the Arrival Conference. CPJs controlling the FMAV completion shall be identified for special management attention by the ISIC, FMA and tended ship.

d. TYCOM/ISIC Actions. During this conference, the TYCOM/ISIC staff will take the following actions (if not already done):

(1) Review any late work candidates submitted by the ship **not** addressed at the PAC, and screen them appropriately. The entire FMA FMAV work package should have been fully identified at the PAC. The goal is to control late work in accordance paragraph 4.3.8 **of this chapter**. Should the late work presented at the conference require that other work be deferred, that work to be deferred shall be clearly understood.

(2) (Submarines and Aircraft Carriers only). Brief the Key Events schedule for the availability. The ship's Key Events should normally be scheduled in the Pre-FMAV/Availability Planning Message, concurred with by the ship's CO on arrival and input to the MDS by the TYCOM/ISIC prior to the Arrival Conference. CPJs controlling the FMAV completion shall be identified for special management attention by the TYCOM/ISIC, FMA and tended ship.

e. FMA Actions. In addition to hosting the conference and participating in the agenda in paragraph 4.6.5.1.b **of this chapter**, the FMA will take the following actions.

(1) Brief the FMAV management on procedures of Volume II, Chapter 4 of this manual, specifically addressing the purpose and schedule of the required meeting and the required attendees.

(2) Designate the Ship Superintendent as the single Point of Contact for all elements of the FMAV. Ship's Force should meet formally with the Ship Superintendent daily to ensure optimum ship/FMA coordination.

(3) Brief CPJs, WSSs and any anticipated problems or concerns.

(4) Brief the status of the FMAV budget and specific problems or concerns.

4.6.5.2 Fleet Maintenance Activity Daily Production Meeting. This meeting is the core of Fleet policies for FMAV Management Control and FMA Production Work Control. The FMA Repair Officer/Production Officer will conduct a Daily Production Meeting for all ships in FMAV or other availabilities.

a. Purpose. The primary purpose of the FMA Daily Production Meeting is to establish a joint FMA/Ship's Force production continuity strategy for at least the next 24 hours. It further provides the current status of FMAV CPJs for each ship in an FMAV. The results of this meeting are used to assess overall progress of the work on ships in FMAV and to ensure all the activities understand the strategy for production and support requirements during, at least, the next 24 hours.

b. Execution. The Daily Production Meeting will be held as early in the day as practicable following quarters, training and drills. All activities involved will ensure that other operational and management meetings are scheduled around the daily FMA Production Meeting in order to avoid diluting its effectiveness. Paragraph 4.6.2 **of this chapter** details the automated management information tools which shall be used at these meetings.

c. Attendees. The personnel listed in Table 1 **of this chapter** shall attend this FMA daily production meeting and participate in its agenda. Others may attend as requested by the FMA Repair Officer/Production Officer.

TABLE 1. DAILY PRODUCTION MEETINGS

Attendees	Submarine	Surface
1. FMA Division Officers	X	X (Note 1)
2. FMA Repair Duty Officer /Repair Duty Chief Petty Officer	X	X (Note 1)
3. FMA Ship Superintendent/Regional Maintenance Team Leader	X	X
4. Supply ROV Officer	X	X
5. Ship's Force Availability Coordinator	X	X
6. ISIC Material/Squadron Representative	X	
7. RAV Coordinator	X (Note 2)	

NOTES: 1. AS REQUESTED BY THE REPAIR OFFICER/PRODUCTION OFFICER
2. AS REQUIRED BY THE ISIC

d. Agenda. The following agenda will be used for the FMA Daily Production Meeting. Additional items may be added at the discretion of the Repair Officer/Production Officer.

(1) Discuss specific work scheduled to be accomplished over the next 24 hours, as a minimum, and support required.

(2) Discuss projected site evolutions (ship moves, weapons moves, pier maintenance, or changes of command, etc.) which could impact production work on ships.

(3) Discuss respective tended ship evolutions such as stores load or Fast Cruise which could impact production work.

(4) The FMA brief on the current status of CPJs on each ship.

(5) Review Safety of Ship maintenance list, necessary safety precautions and their status.

4.6.5.3 Fleet Maintenance Activity Progress Review. This review will be conducted weekly for surface force ships and submarines in FMAVs and periodically as determined by the Supervising Authority for aircraft carriers in concurrent FMAVs.

a. Purpose. The primary purpose of the FMA progress review is to ascertain that CPJs and Key Events are progressing satisfactorily for on time completion of the availability. The meeting shall also identify and resolve any issues, conflicts or differences since availability start or last review.

b. Execution. This review shall be conducted by the Repair Officer/Production Officer and be scheduled so as not to conflict with daily production meetings.

c. Attendees. As a minimum the following shall attend this review.

(1) Repair Officer/Production Officer.

(2) Ship Superintendent and designated representatives.

(3) Tended ship CO.

(4) Availability Coordinator and designated representatives.

(5) TYCOM/ISIC/RSG designated representatives.

d. Agenda. As a minimum the following agenda shall be used for FMA progress review. Additional items may be added at the discretion of the Repair Officer, Production Officer, tended ship CO, or TYCOM/ISIC. Attendees shall be prepared to discuss their respective portions of the agenda.

(1) Discuss specific work scheduled for accomplishment during the FMAV.

(2) Discuss projected FMA and tended ship evolutions which could impact production work on tended ship(s).

(3) Discuss current status of CPJs and Key Events.

(4) Heavily loaded FMA work centers and impact on the availability.

(5) Status of ROV and supplies and equipage funding.

(6) Status of outstanding Departures from Specifications scheduled for correction during the availability.

(7) Outstanding high priority repair material status.

4.6.6 Fleet Maintenance Activity Availability Completion Procedures. The following procedures will be utilized for completing a FMAV. Exceptions are provided for those actions that may be modified for FMAVs of less than four weeks.

4.6.6.1 Management Reports Closeout Procedures. Upon completion of a scheduled availability, the MDS files must be updated to reflect the current status of work. To accomplish this goal and to ensure that all activities understand the status of all work, the following procedures will be followed:

a. Upon completion of the assigned work, the FMA will present a copy of the work candidate to the ship to obtain concurrence that the described work was completed. Ship's Force will complete all AWRs in accordance with reference (a).

b. Within two working days after the completion of an availability, all work centers will ensure that final manhours have been entered. The ship's superintendent may sign off all FMA routines for the ship. Completed work candidates and AWRs will be a product of the FMAV Departure and Assessment Conference of paragraph 4.6.7 **of this chapter**.

c. On the third working day after the completion of an availability, the ARRS will ensure that the CSMP reflects the current status of the ship's JCNs and request a SJM Report by priority for the ship.

d. On the fourth working day after the completion of an availability, the ship's superintendent will annotate each incomplete JCN on the final SJM Report by JCN as to its present status and actions required in order to complete the item. Lead work centers must update this status into MDS.

e. Within seven working days after the completion of an availability, the FMA will forward copies of the annotated SJM Report to the ship and ISIC.

f. The computer generated CSMP is the basic document from which FMA and industrial activity work is derived. Therefore, it is essential that the ship ensure that the CSMP reflects all requests for outside assistance. The CSMP must be complete, contain accurate data and be maintained up to date. Ship's Force will:

(1) Submit requests for outside assistance promptly to the MDCO.

(2) One week prior to the completion of an availability, review the CSMP and ensure completed work has been reported and updates to other entries have been submitted.

4.6.7 End of Fleet Maintenance Activity Availability - Departure and Assessment Conference. This comprehensive review and critique of the availability is another cornerstone of the continuous improvement policy regarding Fleet maintenance.

a. Purpose. The FMAV Departure and Assessment Conference is held to:

(1) Review the conduct of the availability and identify those improvements necessary to increase the effectiveness of Fleet maintenance.

(2) Identify the work which was completed during this FMAV and complete the appropriate documents (e.g., work candidates, AWRs, etc) or produce the list necessary to update the ship's CSMP to reflect the completed work.

(3) Identify and reschedule to a future FMAV, the work deferred during this FMAV.

(4) Identify any incomplete work candidates and plan of action to complete items.

(5) Establish the basic requirements (i.e., initial work package, sequence number and tentative dates) for the next FMAV.

b. Execution. The Departure and Assessment Conference will be held during the last week of the FMAV at a time agreed upon by the FMA Repair Officer/Production Officer and tended ship. This meeting may be held in conjunction with the final weekly Management Conference or Progress Review.

c. Attendees. The Departure and Assessment Conference is chaired by the FMA Repair Officer. The following personnel shall attend this meeting and participate in its agenda:

(1) ISIC Supply Materials, Weapons/Combat Systems, Electronics Material Officer, MDCO and Submarine Engineering Management, Monitoring and Fleet Maintenance Support Program Office/PMT Staff personnel (as applicable).

(2) FMA Repair Officer, Production Officer, ARRS, ROV Officer and Ship Superintendent.

(3) Tended ship CO, Engineer and Availability Coordinator.

(4) Others as directed by the TYCOM, ISIC or FMA CO.

d. Agenda. The following agenda shall be used for reviewing and assessing the FMAV. Additional items may be added at the discretion of the TYCOM, ISIC, FMA or ship. Attendees will be prepared to address their respective portions of the agenda.

(1) Review of the FMAV work package to establish status of each item and, for items completed satisfactorily, complete the work candidate/AWR.

(2) Review incomplete work candidates which will remain open from this FMAV and identify plan of action to complete these items.

(3) Identify and reschedule to a future FMAV the work deferred during this FMAV.

(4) Assess the scheduling, execution and quality of work accomplished by each activity during the FMAV.

(5) Assess the quality of general services provided by the FMA Site.

(6) Review recommendations for process improvements.

e. Results. The FMA shall consolidate the minutes of this meeting, into the Departure and Assessment Report to the TYCOM/ISIC. The report shall include:

(1) List of completed work and/or completed work candidates/AWRs for direct input into MDS to update the ship's CSMP.

(2) Preliminary establishment of the next FMAV.

(3) List of policies and processes identified as requiring review for improvement. Proposed process improvements and corrective actions suggested to improve the effectiveness of future FMAVs.

(4) Lessons learned from the availability.

4.6.8 Fast Cruise/Sea Trials. The ISIC/TYCOM may schedule a one to two day Fast Cruise as part of the FMAV Key Event schedule. This is normally the last major Key Event prior to FMAV completion. As a minimum, the Fast Cruise agenda will include specified drills and evolutions necessary to re-establish proficiency in basic ship operations. It will also include sufficient formal testing to certify that the equipments and systems are fully ready to operate at sea in an operational environment. For FMAVs less than four weeks the requirement for a Fast Cruise shall be at the ISIC/TYCOM discretion. The necessity of Sea Trials is a function of work performed during a FMAV and may not be required. If the duration or complexity of the FMAV is determined to be sufficient to warrant Sea Trials, the Ship/ISIC/TYCOM (as required by specific Force policy) shall determine if a formal Sea Trial Agenda is necessary, and if required, prepare and approve a formal Sea Trial Agenda.

4.6.9 Ship Certification Prior to Underway (Submarines Only). Tended ship and FMA provide the ISIC a written report of ship's certification continuity prior to every underway in accordance with Volume V, Part I, Chapter 5 of this manual.

4.7 RESTRICTED AVAILABILITY/RESTRICTED AVAILABILITY DOCKING. A RAV and RAD are availabilities for the accomplishment of major emergency repairs (such as a major equipment casualty or major damage to the ship due to grounding, collision or fire). Repairs will generally be accomplished by qualified personnel from an industrial activity. During this time the ship will be in port and is rendered incapable of fully performing its assigned mission and tasks due to the nature of the maintenance. A RAD is a RAV expanded to include docking.

4.7.1 Restricted Availability/Restricted Availability Docking Requirements. FMAV planning sources, planning actions, work execution, management closeout procedures, end of FMAV and ships certification prior to underway (Submarines only) requirements apply.

4.7.1.1 Responsibilities.

a. Ship's Force. Submit work candidate in accordance with reference (a) for requested work, testing or assistance.

b. TYCOM/RSG/ISIC.

(1) Screen the work candidate and determine the need to establish a RAV/RAD.

(2) If the estimated cost of the RAV/RAD exceeds TYCOM imposed controls request TYCOM establish RAV/RAD. The following information shall be provided:

(a) Purpose and justifying statement as to the reason the work requested is beyond the capability of Ship's Force or FMA accomplishment.

(b) Proposed dates of the RAV/RAD mandatory completion date.

(c) Cost estimate for the work requested.

(d) Activity to accomplish the work requested.

(3) MOA. Ensure a MOA is issued and agreed to in accordance with section 4.11 **of this chapter**.

c. TYCOM. The TYCOM will review and fund the requested RAV/RAD in writing, subject to the following considerations:

(1) Work requested is beyond the capability of Ship's Force and FMA.

(2) The work is mandatory and cannot be deferred until the next scheduled industrial availability, or an overall savings to the government will result from accomplishment of the work outside an industrial availability.

(3) The supporting FMA is unable to provide the requested support. This may occur when an Afloat FMA (Tender) is away from home port and alternate FMA support cannot be arranged or when the supporting FMA is overloaded with work or does not have the necessary technical support available.

4.8 TECHNICAL AVAILABILITY. A TAV is availability for the accomplishment of specific items of maintenance by a repair activity or to provide technical expertise and guidance to assist FMA or Ship's Force in accomplishment at assigned tasks. During this period the ships ability to fully perform its assigned mission and tasks is not affected by the nature of the maintenance. The ship need not be in port.

4.8.1 Responsibilities. Responsibilities for TAVs are identical to RAVs/RADs and are described in paragraph 4.7.1.1 **of this chapter**.

4.9 VOYAGE REPAIR AVAILABILITY. An unscheduled availability, usually in port, solely for repair activity accomplishment of corrective maintenance on mission or safety essential items necessary for a ship to deploy or to continue on its deployment. Normally this work can be accomplished without requiring a change in the ships operating schedule.

NOTE: IF DEPLOYED TO COMMANDER IN CHIEF U.S. NAVAL FORCE EUROPE, COMMANDER FIFTH FLEET OR COMMANDER SEVENTH FLEET AREA OF RESPONSIBILITY REFER TO VOLUME III OF THIS MANUAL FOR PROCEDURES AND RESPONSIBILITIES FOR VOYAGE REPAIRS.

4.9.1 Responsibilities.

a. Ship's Force. Submit work candidate in accordance with reference (a) or CASREP to Parent/host TYCOM/ISIC.

b. TYCOM/ISIC. Screen the work candidate and determine the need for a Voyage Repair. If necessary, take action to provide and fund required assistance from repair activity. (e.g., FMA/industrial activity Fly Away Team, FTSC Technical representative).

4.10 SPECIALIZED MAINTENANCE FUNDING.

4.10.1 Minor Work Funds.

a. In order to maintain ships at an optimum level of material readiness, the TYCOM provides procedural guidance and financial support for regular overhauls and other required repairs for assigned ships. Frequently, repairs of a minor nature or miscellaneous technical assistance will be required in addition to this maintenance support. Historically, the high frequency of occurrence, short duration and relatively low costs associated with these maintenance requirements make the assignment of an availability by the TYCOM, for each occurrence, an undesirable administrative burden. In order to provide increased maintenance response at the administrative command level, TYCOMs have established Minor Work Funds at industrial activities to be managed by the Supervising Authority. The Minor Work Fund is for use by administrative commanders when facilities, capabilities or capacity does not exist at the FMA for the accomplishment of minor repairs of an assist nature on assigned ships.

b. The TYCOM assigns TAVs at the beginning of each fiscal year, to establish reservoirs of funds at selected industrial activities. The duration of these TAVs will be for the entire fiscal year. The funds are designated "TYCOM Minor Work Fund" for each ISIC's use. Work within cost and scope, as set forth in this section, may be authorized by the administrative commander without further approval by the TYCOM. The TYCOM will provide quarterly limits to each administrative commander at the beginning of each fiscal year. These controls shall not be exceeded without the prior written approval of the TYCOM. Industrial activity assistance (providing materials or services) must be properly charged in the accounting system to reflect the benefiting unit (ship, service craft, etc.) and to provide accurate input for future budgets. For example, when an industrial activity assists an FMA (such as in providing design services, providing equipment, or manufacturing parts), the resulting charges should be billed to ROV funds vice minor work funds, since these services are in support of FMA work. If FMA or Ship's Force cannot accomplish the repairs due to lack of facilities capabilities, capacities or if urgent requirements make routine processing of ROV or Operating Target (OPTAR) funding ineffective, work may be referred to an appropriate industrial activity for accomplishment with associated costs chargeable to the Minor Work Fund.

NOTE: THE MINOR WORK FUND SHALL NOT BE USED TO ACCOMPLISH CNO MAINTENANCE AVAILABILITY WORK ASSIGNED TO FORCES AFLOAT.

c. (Surface and Submarine Forces only). TYCOM Continental U.S. based Squadron Commanders are authorized to act for the TYCOM in assigning minor work of an assist nature to an industrial activity for accomplishment. Sufficient funds must exist in the Minor Work Fund at the activity concerned to cover the estimated final cost before the work is assigned. The ISIC shall solicit a cost estimate from the industrial activity. Authorization for accomplishment of the required action by the industrial activity shall be subject to the following criteria:

(1) The FMA lacks the facilities, capabilities or capacities to accomplish the required work. In the case of emergency repairs, this may be interpreted to mean the capability to accomplish the required work in the required time frame.

(2) The estimated cost for accomplishment does not exceed TYCOM controls for each work item. Expenditure above that control for each work item must have prior approval of the TYCOM. Telephone authorization may be utilized and must be referenced in the TAV message to the industrial activity, with an information copy to the TYCOM.

(3) When a repair cost is estimated to exceed TYCOM controls, the TYCOM may assign a RAV or TAV, as the situation dictates. The request to the TYCOM for assignment of an availability in these cases will include the name of the industrial activity desired plus the data required by paragraph 4.10.1.f **of this chapter**.

(4) RAVs, regardless of the cost involved, can only be assigned by the TYCOM. Required maintenance should not be deferred due to insufficient ROV or OPTAR funds. If it becomes apparent that a shortage of components or equipment threatens the mission, capability or safety of any ship, the details should be addressed immediately to the TYCOM by message.

d. Work Categories. Work should generally fall within, but need not be restricted to, the following categories:

(1) Design and engineering services.

(2) Laboratory analysis of liquids and materials.

(3) Testing and associated minor repairs.

(4) Repairs to specific equipments beyond the capability of the FMA.

(5) Miscellaneous services, such as floating crane, reefer services, etc.

(6) Minor voyage repairs.

e. Work not authorized for application of the Minor Work Fund. The following are examples of expenditures not authorized under the Minor Work Fund to:

(1) Procure material for future fiscal year availabilities. The industrial activity will fund the procurement of materials prior to the fiscal year of its availability start and reimbursement during the year of induction.

(2) Install, repair, or calibrate unauthorized shipboard equipment.

(3) Repair or calibrate equipment not installed aboard ship during normal operations.

(4) Install, transfer, repair, or calibrate equipment of a temporary nature.

(5) Repair boats or craft not in the authorized allowance of ships.

(6) Provide training. However, training that results as a minor adjunct to an authorized repair is permissible.

(7) Provide travel, messing, or berthing to Ship's Force or staff personnel.

(8) Augment programs sponsored/funded by Naval Sea Systems Command (NAVSEA) or other activities.

f. Work Authorization. Authorization shall be in the form of a message to the industrial activity, with information copy to the TYCOM, in the format shown in Appendix I of this chapter. TAV numbering sequence, funding document number and fund code data will be obtained from the TYCOM. When circumstances so warrant, telephone authorization may be utilized with follow-up formal authorization. In all cases, a properly executed work request (OPNAV 4790/2K) will be screened to the industrial activity in confirmation of the initial request. Each authorization must contain:

(1) The name of the ship involved.

(2) The nature of the repair or service.

(3) The dates of the availability.

(4) A statement certifying that the work is beyond the capability of the local FMA.

(5) The estimated labor and material cost.

(6) A statement requesting the industrial activity to provide final cost within 30 days after completion of the availability.

g. Special Procedures and Considerations.

(1) Reconciliation. Each TYCOM/ISIC must reconcile quarterly with the industrial activity to ensure controls are not exceeded. Any request to exceed quarterly controls must be in writing to the TYCOM. ISICs are required to submit a Quarterly Reconciliation Report, Appendix J of this chapter, to the TYCOM no later than the fifteenth day of the month following the end of each quarter.

(2) Overtime. The TYCOM will fund overtime only under the following provisions:

(a) Naval Industrial Activities. When assigning a TAV requiring overtime to a naval industrial activity, a statement must be made certifying the operational necessity for overtime work. The following statement should be used: "Operational necessity certified, premium time authorized." It is incumbent upon each ISIC to ensure that completion dates assigned to an availability are consistent with the urgency of the authorized work so as to eliminate needless use of overtime work. Generally a C3 or C4 CASREP should be associated with the requirement for overtime.

(b) Private Industrial Activities. When the use of overtime at government expense is required to meet completion dates, Supervising Authorities will request overtime authorization. Approval of the overtime may be granted if the overtime is required to meet essential military commitments. In this instance, the following statement is recommended: "Due to military necessity, will accept premium cost of necessary overtime to meet required completion date." Again, the C3 or C4 CASREP criteria apply.

4.11 MEMORANDUM OF AGREEMENT. For all TYCOM maintenance availabilities assigned to industrial activities the tended ship's ISIC (Submarines/Surface Ships) or TYCOM (Aircraft Carriers) shall ensure a MOA is issued and agreed upon by all involved parties. The purpose of the MOA is to define areas of responsibility for all activities involved with the availability. Reference (e) contains additional guidance for MOAs involving nuclear powered surface ships. As a minimum the MOA shall include:

a. Purpose

b. Applicability

c. Responsibilities for control of plant conditions and work area isolation.

d. Responsibilities for accomplishment of work.

e. Responsibilities for QA.

f. Responsibilities for support services/equipment.

g. Responsibilities for testing requirements.

h. Responsibilities for waivers, deviations, or Departures from Specification.

i. Miscellaneous responsibilities (as required) (e.g., Radiological Control, Hazardous Material, Ship to Shop material control).

j. Facility and personnel security clearance requirements for the maintenance. Facility and personnel security requirements for maintenance in nuclear propulsion plant spaces and radiologically controlled areas are contained in references (l) and (m).

k. Responsibility for radiological control training and dosimetry issue (as required) per references (n) or (o).

l. Responsibilities for recertification of work performed.

m. Signatures of all activities (signifying agreement with the terms and responsibilities of the MOA).

4.12 SHIP TO SHOP MATERIAL CONTROL. Positive identification and control of ship to shop transfer of equipment and components is maintained through the use of a Ship to Shop tag. The Ship to Shop tag may also be used in conjunction with other methods specified by the contractor or the Naval Supervising Activity. Each Repair Activity shall make sure that positive control exists for those subcomponents of equipment and components received with a Ship to Shop tag attached. The procedure for using the Ship to Shop tag is provided in Appendix K.

APPENDIX A

SUGGESTED FORMAT FOR A MESSAGE WORK CANDIDATE

FM: USS (SHIP NAME)//
TO: TYCOM/RSG/ISIC//
INFO: FMA TO PERFORM WORK//
ISIC OF FMA (IF DIFFERENT FROM REQUESTING SHIPS ISIC)//
TYCOM//N40//
BT
(CLASSIFICATION)//NO4790//
MSGID/GENADMIN//SHIP//
SUBJ/MESSAGE WORK CANDIDATE//
REF/A/DOC/CINCLANTFLT/CINCPACFLT/(DATE)//
AMPN/REF A IS CINCLANTFLT/CINCPACFLTINST 4790.3,
JOINT FLEET MAINTENANCE MANUAL//
RMKS/1. UIC
2. WORK CENTER
3. JSN
4. APL/AEL
B. (SHIP'S HULL NO.)
5. EQUIP NAME
6. WHEN DISCOVERED
7. STATUS
8. CAUSE
9. DEFERRAL REASON
13. IDENTIFICATION/EQUIP SERIAL NUMBER
14. EIC
15. SAFETY HAZARD (LEAVE BLANK OR STATE SAFETY HAZARD AND EXPLAIN IN BLK 35)
16. LOCATION
17. WHEN DISCOVERED
25. SF MHRS EXPENDED (1 HR=0001)
26. DEFERRAL DATE
28. DEADLINE DATE
35. REMARKS/DESCRIPTION
37. CSMP SUMMARY
38. FIRST CONTACT
40. SECOND CONTACT/SUPERVISOR
41. PRIORITY
42. T/A
46. SPECIAL PURPOSE
47. BLUE PRINTS/TECH MANUAL/PLANS/ETC
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS UTILIZED.

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APPENDIX B

FMAV KEY EVENT CODES

KEY EVENT CODE	ABBREVIATION	SCHEDULING GUIDANCE
01	GOOSENECK HOOK-UP	
02	ORDNANCE LOAD	
03	ORDNANCE OFF-LOAD	
04	CHANGE OF COMMAND	
05	STORE ON/OFF LOAD	
06	DRYDOCKING	
07	UNDOCKING	
08	CARGO ON/OFF LOAD	
09	BERTH SHIFT	
10	O^2 LOADING	
11	N^2 LOADING	
12	REACTOR LIGHT OFF	NORMALLY ONE DAY OR MORE TO FAST CRUISE
13	BOILER LIGHT OFF	
14	NTPI/NWAI	
15	FAST CRUISE	1-2 DAYS PRIOR TO SEA TRIALS
16	SEA TRIALS	1-2 DAYS AFTER FAST CRUISE
17	NPEB/PEB	
18	INSURV	
19	BATTERY ALIGNMENT	
20	BALLAST	
21	DEBALLAST	
22	ECM TESTING	
23	HAZMAT HANDLING	
24	END ROH	

KEY EVENT CODE	ABBREVIATION	SCHEDULING GUIDANCE
25	SALVAGE INSPECTION	PRIOR TO DAY 7 (ROUTINE INSPECTIONS COMPLETE)
26	HULL INSPECTION	PRIOR TO DAY 7 (ROUTINE INSPECTIONS COMPLETE)
27	BEGIN SRA	
28	END SRA	
29	COLD PLANT OPS	
30	REACTOR COOL-DOWN	
31	REACTOR HEAT UP	
32	GOOSENECK DISCONN	
33	BOILER INSPECTION	
34	CREW DEBARK	
35	CREW EMBARK	
36	BOILER HYDRO	
37	UNDERWAY	
38	TENDER UNDERWAY	
39	TENDER REPLENISH	
40	ENG PLANT TURNOVR	
41	MECHANICAL CHKOUT	
42	#1 PLANT LIGHT OFF	
43	#2 PLANT LIGHT OFF	
44	#3 PLANT LIGHT OFF	
45	#4 PLANT LIGHT OFF	
46	RAV/TAV	
47	HOT PLANT OPS	
48	CRITICALITY	
49	TSTA	

KEY EVENT CODE	ABBREVIATION	SCHEDULING GUIDANCE
50	CSA	
51	STEAM SYS COMP	PRIOR TO EVENT 15
52	TD SYS COMP	PRIOR TO EVENT 31
53	SW SYS COMP	
54	HYD SYS COMP	
55	SONAR SYS COMP	
56	SAIL CLOSEOUT	
57	DIESEL INSPECT	
58	MRCI	
59	DOCK TRIALS	WHEN USED, PRIOR TO EVENT 15
60	CART	
61	STER/DIV SYS COMP	
62	PMT/ASRR/ **SEMAT II**	
63	LOA/OPPE	
64	CSRR PHASE 1	
65	CSRR PHASE 2	
66	MAST/ANTENNA COMP	
67	MAST/ANT INSP CMP	
68	VENT SYS COMP	
69	IC SYS COMP	
70	FLIGHT DECK OPS	
71	WEAPONS SYS INSP	
72	ELEC SYS COMP	
73	HULL/TOPSIDE COMP	
74	A/C & R SYS COMP	
75	WEPS SYS COMP	
76	LUBE OIL SYS COMP	

KEY EVENT CODE	ABBREVIATION	SCHEDULING GUIDANCE
77	DIESEL SYS COMP	
78	NUC WORK COMP	
79	SHIPALT/A&I COMP	
80	ENGINEROOM STEAM	
81	ARRIVE SHIPYARD	
82	COMM/NAV SYS COMP	
83	ATMOSPH CNTR COMP	
84	HABIT SYS COMP	
85	PLUMB/DRAIN COMP	
86	DEPART SHIPYARD	
87	DEFUEL SHIP	
88	FUEL SHIP	
89	OWN SHIPS DIVE OP	
90	IMMPS INSP COMP	
91	IMMPS/URO COMP	
92	BEGIN ROH	
93	HERO	
94	ADJ SHIPS DIVE OP	
95	CS PPG INSP COMP	
96	RLF VLV IMMP COMP	
97	PIER RESTRICTIONS	
98	FMA WORK COMPLETE	3 DAYS PRIOR TO END OF AVAILABILITY
99	END OF AVAIL	

APPENDIX C

FMAV MILESTONE SCHEDULE

* Times are in days

NO.	MILESTONE	*AIR	*SURF	*SUB
1	Issue Pre-FMAV Message (See Appendix H of this chapter)	A-60/FMA	A-60/FMA	N/A
2	Review CSMP and ensure all deferred maintenance actions intended for accomplishment during the FMAV are identified by priority and submit to the TYCOM/ISIC.	A-50/Ship	A-50/Ship	A-40/Ship
3	Review PMS, Reactor Plant PMS, CSMP, and testing requirements and ensure all Ship's Force maintenance actions scheduled for accomplishment during the FMAV are identified.	A-50/Ship	A-50/Ship	A-40/Ship
4	Submit all Ship's Force maintenance actions identified in Milestone #3 of this Appendix to the ISIC.	N/A	A-50/Ship	A-40/Ship
5	Review PMR/URO requirements and ensure all maintenance actions intended for accomplishment during the FMAV are identified.	N/A	N/A	A-40/ISIC
6	Review TAMS/FMP and ensure all authorized alterations intended for accomplishment during the FMAV are identified by priority based on material availability as identified by the FMA.	A-50/TYCOM	A-50/ISIC	A-40/ISIC MDCO
7	Review the MJC and identify the routine package to be accomplished during the FMAV.	A-50/TYCOM	A-50/ISIC	A-38/ISIC
8	Screen and forward the complete prioritized work package to the FMA.	A-40/TYCOM RSG	A-40/RSG	A-35/ISIC

NO.	MILESTONE	*AIR	*SURF	*SUB
9	Review CSMP T/A 2 items. Identify and order LLTM.	A-40/FMA	A-40/FMA	A-30/FMA
10	Establish FMAV ROV funding targets for budgeting purposes for the FMAV.	A-40/ FUNDING ACTIVITY	A-40/ISIC	A-35/ISIC
11	Review the FMAV work package, begin writing FWPs/CWPs, identify CPJs and develop the WSS to aid in tracking and coordination of all work.	N/A	A-30/FMA	A-30/Ships Force/FMA
12	Develop recommended Key Events schedule and present to ISIC/Ship's Force /TYCOM.	A-30/FMA	A-30/FMA	A-30/Ship's Force /FMA
13	Review scheduled Ships Maintenance Monitoring Support Office, PMT, MCA inspections and testing that may result in significant new work for the FMA or Ship's Force or that may impact scheduled Ship's Force and/or FMA work.	A-30/TYCOM	A-30/ISIC	A-30/ISIC/PMT
14	Identify outside activities (e.g., Naval Surface Warfare Center (NSWC), Alteration Installation Team, etc) participating in the FMAV and associated support requirements.	A-30/TYCOM	A-30/ISIC/ Maintenance Manager	A-30/ISIC
15	Identify required special evolutions associated with Pre-Oversea Movement availabilities or Pre-availability Testing.	A-30/TYCOM	A-30/ISIC	A-30/ISIC
16	Integrate recommended FMA Key Event schedule at the WDC.	A-30/TYCOM	A-30/ISIC	A-30/ISIC
17	Conduct WDC.	A-30/TYCOM	A-30/RSG	A-30/ISIC
18	One week planning availability.	A-28/TYCOM	A-28/ISIC	A-28/ISIC
19	Complete shipchecks and order all required material.	A-25/FMA	A-25/FMA	A-28/FMA
20	Identify to RSG/ISIC/TYCOM rejected work candidates.	A-20/FMA	A-20/FMA	A-21/FMA

NO.	MILESTONE	*AIR	*SURF	*SUB
21	Rescreen and assign rejected work candidates. Notify ship of final disposition of each item.	A-15/RSG/ TYCOM	A-15/RSG	A-15/ISIC
22	Issue availability planning message prepared in accordance with Appendix G of this chapter.	N/A	N/A	A-14/ISIC
23	Develop strategy for FMA/Ship's Force calibration of gages, instruments and tools.	A-10/ Ship/FMA	A-10/ Ship/FMA	A-10/ Ship/FMA
24	Conduct PAC.	A-10/TYCOM	A-10/ISIC	A-0/ISIC
25	Begin processing all work as "Late" Work in accordance with paragraph 4.3.8.	A-10/RSG/ TYCOM	A-10/RSG	A-0/ISIC
26	Conduct Arrival Conference.	A-0/FMA	A-0/FMA RSG/ISIC Ship/Maintenance Manager	A+3/FMA
27	Conduct daily FMA production meeting.	Daily/FMA	Daily/FMA	Daily/FMA
28	Conduct daily duty section meetings.	Daily/FMA	Daily/FMA	Daily/FMA
29	Conduct Progress Review.	Periodic/ FMA/RSG/ TYCOM/ Ship	Weekly FMA/RSG ISIC/Ship	Weekly FMA/ TYCOM/ Ship
30	Complete FMAV.	C+0/FMA	C+0/FMA RSG/Ship	C+0/FMA
31	Conduct Departure and Assessment Conference.	C+0/FMA Ship/ TYCOM	C+0/FMA Ship /ISIC	Last week of FMAV/ISIC
32	Issue Departure and Assessment Report.	C+21/FMA	C+21/FMA	C+21/FMA

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APPENDIX D

AVAILABILITY PLANNING MESSAGE (SUBMARINES ONLY)

FM COMSUBRON (SQUADRON NO.)//
TO USS (SHIP NAME AND HULL NO.)//
INFO FMA (ACTIVITY)//
TYCOM (COMSUBLANT/COMSUBPAC)//
BT
(CLASSIFICATION) //N04790//
MSGID/GENADMIN/COMSUBRON// (AS APPROPRIATE)
SUBJ: **(SUBS)** AVAILABILITY PLANNING FOR USS (SHIP NAME AND HULL NO.)//
REF/ (AS APPROPRIATE)//
RMKS/1. FOL EVENTS PLANNED FOR NEXT AVAIL
A. MAJOR JOBS (ANNOTATE SHIPS FORCE OR FMA)
(1) ESD
(2) ESD
(3) ESD
B. CONTROLLING KEY EVENT/DATES:
(1)
(2)
(3)
C. MAJOR PMR JOBS:
(1)
(2)
(3)
D. ALTS FOR FMA ACCOMPLISHMENT:
(1)
(2)
(3)
E. ALTS FOR S/F ACCOMPLISHMENT:
(1)
(2)
(3)
F. ALTS FOR OUTSIDE ACTIVITY (INDUSTRIAL ACTIVITY, VENDOR, ALT)
G. DEPARTURES FROM SPECIFICATION TO BE CLEARED:
H. OTHER EVOLUTIONS/EVENTS://
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX E

PRE-FMAV MESSAGE (SURFACE SHIPS ONLY)

FM FMA//
TO TENDED UNIT(S)//
INFO ISIC//
TYCOM//
READSUPPGRU//
BT
UNCLAS //N04790//
MSGID/GENADMIN/FMA//
SUBJ/FLEET MAINTENANCE ACTIVITY AVAILABILITY (FMAV)//
REF/A/RMG/ORIG (AVAIL SCHEDULING MSG)/DTG//
AMPN/REF A IS AVAILABILITY SCHEDULING MESSAGE//
REF/B/CINCLANTFLT/CINPACFLTINST 4790.3//
AMPN/REF B IS JOINT FLEET MAINTENANCE MANUAL//
REF/C/OPNAVINST 4790.4/MARCH 95//
AMPN/REF C IS 3-M MANUAL//
RMKS/1. REF A ASSIGNS FMAV AS FOLLOWS:
(ASSIGNED UNIT(S)) (DATES)
2. REF B REQUIRES THAT WORK PACKAGE BE FORWARDED TO FMA 40 DAYS PRIOR TO START OF AVAILABILITY. WORK PACKAGE SHOULD BE RECEIVED BY FMA NLT:
(ASSIGNED UNIT(S)) (DATE)
3. SUBMIT WORK PACKAGE ACCORDING TO THE FORMAT LISTED BELOW:
A. WORK SELECTED FROM CSMP:
1. CSMP TA-II JOBS
2. CSMP TA-(OTHER) JOBS THAT WILL BE CHANGED TO TA-II
B. WORK NOT LISTED IN CSMP
1. MASTER JOB CATALOG (MJC)
2. WORK NOT IN MJC OR CSMP
C. ALTERATIONS FOR FMA ACCOMP
D. INTEGRATED PRIORITY LIST OF ALL WORK CANDIDATES BY JCN SEQUENCE
E. CONTROLLING KEY EVENTS, CRITICAL DUE DATES AND IMPACTING EVOLUTIONS.
4. PRE-AVAILABILITY VISIT FOR SHIPCHECK OF PERTINENT WORK WILL OCCUR AS SOON AFTER INITIAL WORK PACKAGE SCREENED AS MUTUALLY AGREEABLE. AS PART OF SHIPCHECK, DESIRE TO OBSERVE OPERATION OF ENGINEERING PLANT IN CONJUNCTION WITH SHIP AND ISIC/TYCOM PERSONNEL. DETAILS WILL BE ARRANGED SUBSEQUENT TO WORK PACKAGE SCREENING.
5. DURING YOUR FMAV, QA WILL PLAY A SIGNIFICANT ROLE. FOR ORIG TO OFFER MAX BENEFIT OF QA PROGRAM, REQUEST:

A. YOUR QA OFFICER IS MADE AVAILABLE FOR ONE DAY FOR BRIEF ON FMA QA PROCEDURES AND SHOP PRACTICES.

B. PROVIDE LIST OF ASSIGNED QA INSPECTORS AT ARRIVAL CONFERENCE.

C. INDICATE LEVEL OF QA DESIRED IN BLOCK 35 OPNAV 4790/2K AS REQUIRED BY REF C.

D. ENSURE WORK CANDIDATES HAVE BLUEPRINT NR AND -OR TECHMAN NR AS APPLICABLE IN BLOCK 47, ALTERATION NR LISTED IN BLOCK 18 AND THAT APL NR BLOCK 4 IS FOR ITEM TO BE REPLACED, NOT THE SYSTEM ATTACHED.

E. WORK CANDIDATES MUST BE SUPPORTED BY DOCUMENTATION TO MEET QA REQUIREMENTS.

F. QA TRAINING FOR YOUR PERSONNEL IS OFFERED BY FMA. TRAINING IS ALONG THE GUIDELINES OF REF B, AND CAN BE TAILORED TO SPECIFIC REQUIREMENTS. CONTACT FMA QA OFFICER TO ARRANGE QA TRAINING NLT 14 DAYS BEFORE START OF FMAV.

6. WORK CANDIDATES NOT IAW PARA 3 ABOVE WILL BE REJECTED. EARLY LIAISON WITH ORIG WILL ALLEVIATE THESE DIFFICULTIES.

7. SHIP SUPERINTENDENTS TENTATIVELY ASSIGNED AS FOLLOWS: (TENDED UNIT(S)) (SHIP SUPT'S NAME) (SSN) (CLEARANCE)

8. REQUEST YOU DESIGNATE AN EXPERIENCED OFFICER OR SENIOR PETTY OFFICER TO ACT AS YOUR AVAILABILITY COORDINATOR-POINT OF CONTACT OR SITE COORDINATOR FOR CONCURRENT AVAILS. SUBMIT NAME AND RANK/RATE ALONG WITH WORK PACKAGE.

9. ORIG FORWARDING AVAILABILITY GUIDE WITH SPECIFIC SHOP CAPABILITIES, DETAILED FMAV PROCEDURES, GUIDELINES FOR PREPARING PACKAGE AND SERVICES AVAILABLE.

10. FMA WELCOMES THE OPPORTUNITY TO BE OF SERVICE.//

BT

NOTE: NOT FOR SHIPS IN CONTINUOUS MAINTENANCE (as defined by Volume II, Chapter 2, Section 2.7 of reference (b) of this message).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX F

SAMPLE TAV FUNDING AUTHORIZATION MESSAGE

FM TYCOM//N40//
TO SUPERVISING AUTHORITY//CODE//
INFO CINCLANTFLT/CINCPACFLT//N4331/NO2F13//
ISIC//
USS (SHIP NAME/HULL NO.)//
BT
UNCLAS //N07042//
MSGID/GENADMIN/TYCOM//
SUBJ/(SUBS) (SUBS ONLY) USS (SHIP NAME/HULL NUMBER) (TAV NUMBER)//
REF/A/RMG/ISIC/DTG//
REF/B/TEL/ISIC/DATE//
NARR/REF A IS REQUEST FOR TAV TO (DESCRIBE REPAIR) USS (SHIP NAME/HULL NUMBER). REF B IS PHONECON BTWN (NAME)/(TYCOM) AND (NAME)/SUPERVISING AUTHORITY//
RMKS/1. AS REQUESTED REF A AND AS DISCUSSED REF B USS (SHIP NAME/HULL NUMBER) IS ASSIGNED (TAV NUMBER) FOR (DESCRIBE REPAIR). FOL INFO PROVIDED:

A. AVAIL DATES (DATE) TO (DATE)
B. FUNDING DOCUMENT (NUMBER)
C. COST CODE (CODE)
D. PLANNING ESTIMATE ESTABLISH
(1) THIS REQUEST XX,XXX DOLS
(2) TOTAL THIS AVAIL XX,XXX DOLS

2. (IF REQUIRED) AS REQUIRED BY PARA 6.302-2, FEDERAL ACQUISITION REGULATIONS, UNUSUAL AND COMPELLING URGENCY CERTIFIED. IMMEDIATE REPAIRS TO ESSENTIAL SHIPBOARD EQUIPMENT IS MANDATORY TO ENSURE COMPLETION PRIOR TO SHIPS OPERATIONS OR DEPLOYMENT.
3. (IF REQUIRED) THIS MESSAGE IS ISSUED IN ANTICIPATION OF ENACTMENT OF FY-XX DOD APPROPRIATION: THE APPROVED CONTINUING RESOLUTION HAS AN EXPIRATION DATE. OBLIGATION AUTHORITY MAY OCCUR WHEN THE CONTINUING RESOLUTION AUTHORIZATION IS CURRENT OR THE ACT HAS BECOME LAW.
4. DIRLAUTH ALCON FOR SCHEDULING DETAILS AND LOCAL SUPPORT.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX G

QUARTERLY RECONCILIATION REPORT

TAV NO.	SHIP	INITIAL ESTIMATE	INCREASE/DECREASE	FINAL COST

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APPENDIX H

SHIP TO SHOP TAG MAT-1 (GENERAL USE)
S/N 0103-LF-655-1200

NOTE: THE MAINTENANCE PROVIDER WILL ESTABLISH A PROCESS FOR CONTROLLING MATERIAL BEING TRANSPORTED FROM SHIP TO SHOP. IF A PROCESS IS USED OTHER THAN DESCRIBED BELOW, ISIC APPROVAL IS REQUIRED.

1. Purpose. To maintain positive identification and control of ship to shop transfer of equipment and components.

2. Procedure.

   a. Ship's Force personnel will fill out all blocks in Part 1 and those marked with an asterisk (*) in Parts 2 and 3, attach the tag to the equipment/component and deliver to the Repair Activity. Verify correct EIC/APL is provided. Ensure accurate description of desired work is included in Job Brief/Equip Nomenclature Block. Example: No. 2 Main Lube Oil Pump Discharge Relief Valve Pop Test to 45 psi and attach test tag.

   b. When the component is delivered to the Repair Activity, ship's representative will sign and date Part 1 and 3 in the applicable blocks. The Repair Activity representative will sign and date Part 3 to acknowledge receipt of the equipment/component. Part 3 will be detached from the tag and given to she ship's representative.

   c. Upon completion of repairs, the Repair Activity will record work performed, sign and date Part 2 and forward Part 2 to the ship as notice that the equipment/component is ready to be picked up.

   d. The ship's representative will present Part 3 to the Repair Activity Shop when picking up the equipment/component. Ship's Force should sign the Work Request for job completion when the item is picked up. If desired, part 3 may be attached to the completed work request.

3. Block Description

   a. Part 1.

Ship	Ship's name and hull number
JCN	Job Control Number (UIC, Work Center and JSN)
EIC/APL	Equipment Identification Code/Allowance Parts List of item worked
Ser. No.	Equipment/Component Serial Number
Job Brief/Equip Nomenclature	Job Description and name of equipment or component
Lead W/C	Work center responsible for equipment/component
Date Delv'd	Date delivered to Repair Activity
Delivered By	Signature of person delivering item

b. Part 2.

Ship	Ship's name and hull number
JCN	Job Control Number (UIC, Work Center and JSN)
Job Brief/Work Performed By Repair Activity	Job Description and brief explanation of work performed
Repair Activity Rep.	Signature of person verifying work complete
Date	Date of signature above

c. Part 3

Ship	Ship's name and hull number
JCN	Job Control Number (UIC, Work Center and JSN)
Job Brief/Equip Nomenclature	Job Description and name of equipment or component
Received By	Signature of Repair Activity person accepting item for work
Date	Date of signature above
Delivered By	Signature of person delivering item to Repair Activity
Date	Date of signature above

SHIP TO SHOP TAG (GENERAL USE)
(Tag color is blue)

MAT-1

SHIP TO SHOP TAG
(GENERAL USE)
TAG ____ OF ____

(PART 1)

SHIP JCN

EIC/APL | SER. NO.

JOB BRIEF/EQUIP NOMENCLATURE

LEAD W/C | DATE DELV'D | DELIVERED BY

(PART 2)

READY FOR PICK UP TAG

SHIP* JCN*

JOB BRIEF-WORK PERFORMED

REPAIR ACTIVITY REP. | DATE

(PART 3)

CUSTOMER MATERIAL RECEIPT

SHIP* JCN*

JOB BRIEF/EQUIP NOMENCLATURE*

RECEIVED BY | DATE

DELIVERED BY | DATE

SHIP'S FORCE REMOVE AND RETAIN PART 3 AS RECEIPT FOR MATERIAL DELIVERED TO THE REPAIR ACTIVITY

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VOLUME II

CHAPTER 5

DEEP SUBMERGENCE VEHICLE/DEEP SUBMERGENCE RESCUE VEHICLE TRIAL REQUIREMENTS

REFERENCES.

(a) NAVSEA SS800-AG-MAN-010/P-9290 - System Certification Procedures and Criteria Manual for Deep Submergence Systems
(b) OPNAVINST 3150.27 - Navy Diving Program
(c) COMSUBLANT/COMSUBPACINST C3500.1 - Submarine Force Training Manual

LISTING OF APPENDICES.

A Sequence of Events Leading to System Certification and Sea Trials
B Sample Phase II Crew Certification Agenda for DSVs/DSRVs

5.1 PURPOSE. To provide guidance in the recertification requirements of references (a) through (c) for Deep Submergence/Rescue Vehicles completing Operating Cycle maintenance. Information concerning the maintenance and certification of Diver Life Support Systems, Submarine Rescue Chambers and Dry Deck Shelters is addressed in Volume IV, Part III, Chapter 12 of this manual.

5.2 DEEP SUBMERGENCE VEHICLE/DEEP SUBMERGENCE RESCUE VEHICLE MAINTENANCE STRATEGIES. The Deep Submergence Vehicle (DSV)/Deep Submergence Rescue Vehicle (DSRV) maintenance strategies involve a number of short to medium length Restricted Availabilities (RAVs) between extended major maintenance availabilities which occur concurrently with mandatory 60 month hull surveillance for DSVs and 72 months for DSRVs. Even with this difference in maintenance strategies the similarity in systems and procedures is such that the provisions and intent of submarine trial requirements have been incorporated for DSVs/DSRVs wherever possible. Mandatory recertification procedures have been incorporated into Sea Trial requirements for DSVs/DSRVs presented in this chapter.

5.3 PROCEDURES.

5.3.1 Restricted Availabilities Two Months Duration or Less.

a. No requirements are invoked for crew certification, Fast Cruise or Sea Trials. Should the Officer In Charge (OIC) determine that alterations/repairs accomplished or personnel transfers warrant time for crew training, a formal request shall be submitted to the Type Commander (TYCOM), via the Commander, Submarine Development Squadron (COMSUBDEVRON) FIVE, requesting training time be allowed following completion of the availability.

b. Dock Trials are limited to testing of those equipments/systems repaired, disturbed or altered during the availability. Dock Trials for DSVs/DSRVs will be conducted "wet" in the Deep Submergence Unit (DSU) Test Pool or on a tethered or captured lift system (i.e., support ship).

c. Availabilities of this duration will not normally encompass work of sufficient scope to require an on-site survey by the Naval Sea Systems Command (NAVSEA) System Certification Authority (SCA). However, if work performed during the availability warrants an on-site survey to verify that system certification has been properly sustained during the availability or to authorize a continuance of system certification, the procedures of paragraph 5.3.2.g of this chapter apply.

d. The Fleet Maintenance Activity (FMA)/industrial activity shall provide the DSV/DSRV with written verification that all repairs have been completed in accordance with specifications. References (a) and (b) contain the specific requirements for the areas that must be addressed by the written verification.

e. The OIC of the DSV/DSRV shall provide written verification to COMSUBDEVRON FIVE, with an information copy to TYCOM, that all repairs completed by Ship's Force have been completed in accordance with applicable specifications.

f. The OIC of the DSV/DSRV shall send a message to COMSUBDEVRON FIVE with an information copy to TYCOM, that the RAV has been completed and that the unit is fully ready to assume operational duties.

5.3.2 Restricted Availabilities Greater Than Two Months but Less Than Six Months Duration. The following requirements are invoked and time for these evolutions shall be included in the availability schedule.

a. Dock Trials will be conducted in accordance with paragraph 5.4.3 of this chapter.

b. No requirements are invoked for crew certification and availability time will not be allocated for this function. Should the OIC determine that alterations accomplished or personnel transfers warrant crew certifications, a formal request must be initiated. Requests will be addressed to the TYCOM, via COMSUBDEVRON FIVE. The activity accomplishing the availability is requested to advise the TYCOM what adverse effects crew certification will impose upon the availability schedule.

c. The FMA/industrial activity shall provide the DSV/DSRV with written verification that all repairs have been completed in accordance with specifications.

d. The OIC of the DSV/DSRV shall provide written verification to COMSUBDEVRON FIVE, information copy to the TYCOM, that all repairs completed by Ship's Force have been completed in accordance with applicable specifications.

e. Fast Cruise will be conducted in accordance with paragraph 5.4.4 of this chapter. Reduction in the scope of Fast Cruise may be granted by COMSUBDEVRON FIVE where warranted by the scope of work performed or the state of crew training.

f. Sea Trials are required only as necessary to test work completed during the availability. As a minimum this will include one dive to test depth. The industrial activity and Ship's Force shall develop the Sea Trial Agenda and submit it to COMSUBDEVRON FIVE for approval, information copy to the TYCOM. Extension of the Sea Trial period may be granted when warranted by the scope of work accomplished or the inability to conduct the trials because of prohibitive weather or support ship non-availability. Requests for the extension of Sea Trials due to scope of work accomplished, which will require a change in the availability schedule, must be submitted to the TYCOM as early as practical. Extensions due to weather or support ship non-availability may be granted by COMSUBDEVRON FIVE.

g. Availabilities of this duration will normally encompass work of sufficient scope to require an on-site survey by the NAVSEA SCA to verify that system certification has been properly sustained during the availability or to authorize a continuance of system certification. At least six weeks prior to the scheduled availability completion date, COMSUBDEVRON FIVE will request, via the TYCOM, that

NAVSEA perform the on-site survey. Survey deficiencies will be categorized in accordance with reference (a). All Category IA deficiencies must be corrected, and corrective action approved by the NAVSEA SCA and applicable Program Office prior to Fast Cruise. The TYCOM will provide a final clearance report to COMSUBDEVRON FIVE for all survey deficiencies originated by the TYCOM or higher authority.

(1) If the scope of work is of sufficient magnitude to require recertification of the DSV/DSRV, system certification and Sea Trials shall be accomplished in accordance with Appendix A of this chapter except for crew certification. Crew certification is a personnel training and administrative procedure rather than a material procedure and is not required for an availability of less than six months unless specifically requested by the OIC.

(2) If the scope of the work is not of sufficient magnitude to require recertification, Dock Trials, Fast Cruise and Sea Trials shall be accomplished in accordance with events 3, 5 through 9, and 16 through 20 in Appendix A of this chapter. Event 5 in Appendix A of this chapter will be conducted by the Immediate Superior in Command (ISIC).

5.3.3 Restricted Availabilities/Major Maintenance Periods Greater Than Six Months Duration.

a. Appendix A of this chapter outlines the sequence of events leading to system certification and Sea Trials for DSVs/DSRVs. Availabilities of this duration will include maintenance/alterations of sufficient scope to require system recertification.

b. In addition to overall crew certification, there are specific individual qualifications for assigned DSV/DSRV operators and Navy divers. Requirements for certification and maintenance of certification for DSV/DSRV operators are promulgated by DSU Instructions. Requirements for maintaining Navy diver qualifications are set forth in reference (b). It is the responsibility of the OIC of assigned individuals to maintain qualifications during extended availabilities.

5.4 CREW CERTIFICATION/DOCK TRIALS/FAST CRUISE. Appendix A of this chapter lists the sequence of events from the beginning of major maintenance through system recertification. The remainder of this section offers supplementary information concerning the events.

5.4.1 Crew Certification.

a. DSV/DSRV crew certification consists of two parts.

(1) Phase I is as stated in reference (c).

(2) Phase II will consist of an inspection of the vehicle on board the surface support ship. This inspection will assess the ability of the crew to perform under simulated underway conditions, emphasizing emergency drills both on the submersible and the support ship. Phase II will include tethered launch and recovery of the vehicle and a tethered dive, if feasible, not to exceed a depth of one foot of water above the upper hatch, as directed by the senior board member, (waiver of a tethered dive must be approved by the TYCOM). Phase II Crew Certification will be conducted after all Category IA survey deficiencies have been corrected in accordance with paragraph 5.3.2.g of this chapter and prior to Fast Cruise. Appendix B of this chapter provides a sample Phase II Crew Certification Agenda and delineates the normal composition of the inspection team.

5.4.2 Manned Dives/Testing for Deep Submergence Vehicles/Deep Submergence Rescue Vehicles in Pursuit of Certification (or Recertification).

a. DSVs/DSRVs nearing RAV or major maintenance period completion must often conduct manned dives/testing while in pursuit of certification (or recertification). The DSV/DSRV OIC shall take thefollowing action prior to commencing any and all manned dives/testing of systems which are in pursuit of system certification (or recertification).

(1) Manned Testing - System Dry (Closed Boat). The OIC shall ensure the applicable portions of paragraphs 5.4.2.a.(2) of this chapter are assessed for impact on planned testing (no report required).

(2) Manned Dives/Testing - System Wet (Tethered and in the pool as DSU or tethered import (e.g., LANEY CHQUEST) or on a captured lift system at sea (e.g., DOLORES CHQUEST). The OIC shall submit a written request to COMSUBDEVRON FIVE (information copies to the TYCOM and NAVSEA SCA) containing the following:

(a) If the internal survey or NAVSEA SCA survey has been accomplished, provide an impact assessment for any open Category IA deficiencies.

(b) Identify any outstanding deficiencies that may impact dives/testing.

(c) Identify all open Re-Entry Control documents and provide an evaluation of the impact of these Re-Entry Control documents on planned dives/testing.

(d) Ensure life support system and communication system tests have been satisfactorily completed and are functioning properly.

(e) Ensure the results of the closed boat atmosphere analysis (bomb sample) are satisfactory.

(f) Provide assurance that operating and emergency procedures that will be used during the test/dive, including pre and post dive procedures, have been updated to reflect new installation and system modifications.

(g) Provide assurance that planned maintenance procedures that will be used prior to and during the test/dive have been updated to reflect new installations and system modifications.

(h) Ensure the safety analysis of new installations or modified systems that will be operated or tested during the dive has been evaluated by NAVSEA and that there are no hazards that impact planned tests/dives.

(i) Provide assurance electrical system testing (e.g., continuity, insulation resistance and ground checks) has been accomplished to the extent necessary to ensure electrical hazards do not exist to the operators.

NOTES: 1. THE PRECEDING IS NOT INTENDED TO IMPLY THAT NAVSEA APPROVAL IS REQUIRED TO COMMENCE MANNED DIVES/TESTING OR DOCK TRIALS BUT TO ENSURE NAVSEA IS APPRISED IN A TIMELY MANNER OF ACTIONS THAT MAY IMPACT OPERATOR SAFETY.

2. IF THE PRECEDING ITEMS ARE ADDRESSED IN THE MESSAGE (APPENDIX A OF THIS CHAPTER, EVENT 6) WHICH REQUESTS AUTHORIZATION TO COMMENCE DOCK TRIALS AND NAVSEA SCA IS AN INFORMATION ADDRESSEE, THE MESSAGE SATISFIES THE INTENT OF THE REQUEST IN PARAGRAPH 5.4.2.a(2) OF THIS CHAPTER.

(3) Manned Dives/Testing - System Wet (All other tethered and all untethered dives) - NAVSEA SCA approval required.

b. The request required in paragraph 5.4.2.a(2) of this chapter, or the message referred to in paragraph 5.4.2.a(2)(i) (Note 2) of this chapter, must be provided to the NAVSEA SCA at least 24 hours prior to the start of planned manned dives/testing.

5.4.3 Dock Trial Requirements.

a. Dock Trials will be conducted to provide the opportunity to test and check-out all systems, components, and portable support equipment prior to Fast Cruise. Satisfactory completion of Dock Trials is a prerequisite for Fast Cruise. The tests listed in paragraphs 5.4.3.a(1) through 5.4.3.a(3) below represent the minimum required tests to be conducted during Dock Trials. Required tests are separated into tests required for all DSVs/DSRVs and those tests unique to the vehicle class. Dock Trials for DSVs/DSRVs will be conducted "wet" in the DSU Test Pool or on a tethered or captured lift system (i.e., support ship).

(1) General test requirements applicable to all DSVs/DSRVs are as follows:

(a) Conduct normal Pre-Dive maintenance checks.

(b) Test normal and emergency life support systems.

(c) Test sound powered telephone system (topside pilot communications system).

(d) Test variable ballast system.

(e) Test radio transceiver and inspect antenna.

(f) Take pyro resistance readings.

(g) Check operation of battery breakers and bus tie.

(h) Inspect all internal power distribution panels.

(i) Check operation of ground and leak detector systems.

(j) Test gyros and magnetic compasses (as applicable).

(k) Check hatch operation.

(l) Check mechanical and electrical emergency release mechanisms, as practical, without actually jettisoning installed equipment.

(m) Check operation of all meters and gages.

(n) Test all alarms.

(q) Test all sonar.

(r) Test camera and strobe system(s).

(s) Test manipulator(s).

(t) Test Emergency Identification Light.

(u) Check for leaks around all penetrators, view-ports, and hatches.

(v) Inspect or test all emergency/damage control equipment (as applicable).

(w) Test atmosphere monitoring/control equipment.

(x) Test main ballast tank blow and vent system.

(y) Monitor batteries with voltage detector and computer.

(z) Test depth indicating system(s).

(aa) Charge main batteries and safety/emergency batteries.

(ab) Conduct Post-Dive Check Lists.

(**2**) Specific Dock Trial test requirements which are unique to MYSTIC (DSRV-1) and AVALON (DSRV-2) are as follows:

(a) Test intersphere communication system.

(b) Test main propeller on cruise and hover regime in all modes.

(c) Test vertical and horizontal thrusters in all modes.

(d) Test hydraulic power units and cross-connect valves.

(e) Test shroud in all modes.

(f) Test TV system.

(g) Test operate internal hatches.

(h) Test mercury trim and list system.

(i) Test shock mitigation system.

(j) Test dewatering system.

(k) Test computer.

(l) Test tracking transponder in both modes.

(m) Test refrigeration system and equipment cooling.

(n) Test Underwater Telephone (UQC) operation.

(o) Test lighting circuits (internal and external).

(p) Test CRT 1 attitude indication.

(q) Test inertial navigation data plotter.

(r) Test rescue ballast system.

5.4.4 Fast Cruise Requirements. The overall objective of Fast Cruise is to train the crew and determine the crew's ability to safely take the submersible and support ship to sea. In addition to the normal underway routine, the OIC shall have all equipments actuated to check proper operation and to determine the state of crew training. Fast Cruise shall, as far as is practical, simulate at-sea operating conditions. It will be conducted by Ship's Force and is to be unhampered by construction or repair work by contractors or industrial activity personnel. Fast Cruise will not be conducted until Dock Trials, and, if required, Phase II Crew Certification are satisfactorily completed; will use the assigned support ship if feasible, and will be at least 12 hours long, including vehicle handling and battery charging. Sea Trials must commence within 24-72 hours after the completion of Fast Cruise. Should the 72 hour period be exceeded due to weather or support ship non-availability, additional Fast Cruise periods will be conducted as directed by COMSUBDEVRON FIVE. Should the 72 hour period be exceeded for any other reason, additional Fast Cruise periods will be conducted as directed by the TYCOM. (Under these conditions, COMSUBDEVRON FIVE will make formal recommendations to the TYCOM as to the need for, and desired period of, any additional Fast Cruise). Minimum requirements (as applicable) for the conduct of Fast Cruise are as follows:

a. Conduct Pre-Dive Maintenance Checks.

b. Conduct launch/recovery operations with ship's lifting bridle or elevator.

c. Submerge (tethered) not to exceed one foot of water above the upper hatch.

d. Check all instrumentation and safety circuits.

e. Conduct operational test of all systems and components, except emergency release systems, in a simulated dive to maximum operating depth.

f. Test UQC communications.

g. Surface, conduct Post-Dive Maintenance Checks.

h. Check ballasting and compensation.

5.5 SEA TRIALS.

5.5.**1** Deep Submergence Rescue Vehicle Minimum Sea Trial Requirements.

a. DSRV Sea Trials will consist of three dives. All Pre-Dive Maintenance Checks will be completed prior to each dive. Immediately upon submerging, UQC communications will be established with the surface support ship. The surface support ship will obtain an accurate navigational fix of the diving position.

b. The shallow dive will be conducted to a depth of 500 feet (+/-50 feet) in an area where water depth does not exceed 1,000 feet.

(1) Prior to submerging, test the main propulsion and horizontal thruster motors making numerous plug reversals. Make maximum RPM on the main propeller for a minimum of 10 minutes.

(2) The vehicle will be ballasted by using the forward and after transfer tanks to decrease their floodable volume.

(3) Submerge to a depth of 500 feet (+/-50 feet) and obtain neutral trim. Check watertight integrity, take ground readings and report conditions to the surface support ship. Maintain communications with the surface support ship at intervals not to exceed 15 minutes. If communications are lost, return to a depth at which communications can be re-established before continuing.

(4) Upon obtaining neutral trim, test the following equipment/systems:

(a) Sonar/fathometer.

(b) Monitor and check all instrumentation using normal procedures.

(c) TVs and external lights, exercise pan/tilt units.

(d) Propulsion motors, making maximum RPM in forward and reverse, both individually and in combination. Record trim angles produced by the various combinations.

(e) Shroud operation to make pitch and yaw maneuvers.

(f) Variable ballast, trim and list systems.

(g) Manipulator.

(h) Operate shock ring.

(i) Navigation systems operation.

(j) Emergency and normal life support systems.

(k) All hydraulic systems.

(5) Upon satisfactory completion of tests of equipment/systems, report to the surface support ship "Test complete, ready to surface and test Main Ballast Tank blow."

(6) Surface and conduct Post-Dive Maintenance Checks.

c. The intermediate dive will be to a depth of 2,000 feet (+/-200 feet) in an area where water depth is no greater than 2,500 feet.

(1) The vehicle will be ballasted by using the forward and after transfer tanks to decrease their floodable volume.

(2) Submerge to a depth of 500 feet and obtain neutral trim. Check watertight integrity, take ground readings and report conditions to the surface support ship.

(3) Proceed to the dive depth maintaining communications with the surface ship, reporting conditions every 500 feet or at 15 minute intervals whichever is sooner. If communications are lost, return to a depth at which communications can be re-established before continuing.

(4) When at depth, conduct paragraphs 5.5.2.b(4) and 5.5.2.b(5) of this chapter.

(5) Surface and conduct Post-Dive Maintenance Checks.

d. The deep dive will be to a depth of 4,700 feet (+/-300 feet) in an area where water depth is no greater than 5,000 feet. Proceed as in paragraphs 5.5.2.c(2) through 5.5.2.c(5) of this chapter.

e. As soon as practical upon completion of a major maintenance period, a test dive will be conducted utilizing the simulated distressed submarine or a similar test fixture to determine the integrity and operability of the DSRV mating system.

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APPENDIX A

SEQUENCE OF EVENTS LEADING TO SYSTEM CERTIFICATION AND SEA TRIALS

EVENT	APPROXIMATE TIME (Relative to Sea Trials)	ACTION/RESPONSIBILITY
1	Entire major maintenance period	Conduct periodic monitoring (COMSUBDEVRON FIVE). Conduct training program to prepare for crew certification (DSV/DSRV).
2	6 Weeks prior	Request on-site survey by NAVSEA SCA and PMS 395 (DSV/DSRV).
3	30 Days prior	Submit Sea Trial Agenda to **NAVSEA** for review and approval, **copy to Sustaining Activity,** info copies to TYCOM **COMSUBDEVRON FIVE and applicable program office.**
4	30 Days prior	Conduct Phase I Crew Certification (COMSUBDEVRON FIVE, see reference (c)).
5	3 Weeks prior	Conduct on-site certification survey. Deficiencies noted will be categorized Category 1A (must be accomplished prior to manned use), Category 1B (must be accomplished prior to system certification), or Category 1C (must be completed prior to date or event indicated) or II (desirable/systemic weakness) (NAVSEA PMS 395 or ISIC if certification is not required). (See Notes 1 and 2).
6	7 Days prior	Report by message to COMSUBDEVRON FIVE certifying that no deficiencies exist which could affect personnel safety or material safety of the vehicle in support of Dock Trials. Include status of all outstanding certification survey cards (DSV/DSRV). (See Note 3).
7	6 Days prior	Authorize unit conduct Dock Trials (COMSUBDEVRON FIVE).
8	6 Days prior	Conduct Dock Trials (DSV/DSRV).
9	5-6 Days prior	Report by message to COMSUBDEVRON FIVE, info TYCOM, certifying that no deficiencies exist which could effect personnel safety or material safety of the vehicle in support of Fast Cruise and Sea Trials. Certify all Category 1A survey deficiencies have been corrected. Include status of all outstanding survey cards and/or approved departures from specification. (DSV/DSRV).

EVENT	APPROXIMATE TIME (Relative to Sea Trials)	ACTION/RESPONSIBILITY
10	5 Days prior	Report by message to TYCOM, info NAVSEA PMS 395, that the material condition of DSV/DSRV is satisfactory for conduct of Fast Cruise and Sea Trials. Report that all trial schedules have been reviewed and approved (advance copy of Dock Trial, Fast Cruise and Sea Trial Schedules and Agendas to be forwarded by separate correspondence). Certify all Category 1A deficiencies have been corrected. Include status of all outstanding survey cards and/or approved departures from specification. (COMSUBDEVRON FIVE)
11	5 Days prior	Report, by message, to NAVSEA PMS 395 the material adequacy of DSV/DSRV to conduct dives in support of Sea Trials and vehicle certification to specific depths. Include completion report of all Category 1A deficiencies and the current status of Category 1B deficiencies (TYCOM).
12	4 Days prior	Message to TYCOM confirming DSV/DSRV materially adequate to conduct diving operations to specific depths in support of Sea Trials and vehicle recertification. Message will identify NAVSEA PMS 395 SCA or designated representative who will participate in the certification dive (NAVSEA PMS 395).
13	4 Days prior	Report by message to TYCOM, information copy to COMSUBDEVRON FIVE, satisfactory completion of Dock Trials and stating the vehicle and crew are ready for Phase II Crew Certification and Fast Cruise. List any exceptions. Request permission to commence Phase II Crew Certification and Fast Cruise (DSV/DSRV).
14	4 Days prior	Message to COMSUBDEVRON FIVE-granting permission to conduct Phase II Crew Certification and Fast Cruise (TYCOM).
15	3 Days prior	Conduct Phase II Crew Certification (COMSUBDEVRON FIVE) (See reference (c)).
16	2-3 Days prior	Message to DSV/DSRV, information copy to TYCOM, granting permission to commence Fast Cruise (COMSUBDEVRON FIVE).

EVENT	APPROXIMATE TIME (Relative to Sea Trials)	ACTION/RESPONSIBILITY
17	1-2 Days prior	Report by message to the TYCOM, information copy to COMSUBDEVRON FIVE, completion of Fast Cruise, stating vehicle and crew are ready to proceed on Sea Trials in accordance with approved Sea Trial Agenda. List any exceptions. Request permission to proceed on Sea Trials with authorization to conduct dives to depths specified by NAVSEA PMS 395. Report any changes in status of survey deficiencies (DSV/DSRV).
18	1 Day prior	Message to COMSUBDEVRON FIVE and DSV/DSRV, information copy to Commander, Submarine Training Group, granting permission to proceed on Sea Trials (TYCOM).
19		Commence Sea Trials (DSV/DSRV).
20		Message report to the TYCOM and COMSUBDEVRON FIVE noting satisfactory completion of each specific dive (shallow, intermediate and deep/recertification). List any exceptions, include current status of outstanding survey cards. State intentions for conduct of next Sea Trial dive (DSV/DSRV). (See Note 4).
21	1 Day after	Message report to NAVSEA PMS 395 on completion of deep/recertification dive noting any deficiencies within the scope of certification. Request system certification for DSV/DSRV (TYCOM, see Note 5).
22	4 Days after	Issue message granting certification of DSV/DSRV for specific period (NAVSEA PMS 395).
23	4 Days after	Forward data package, if required, for recertification dive to NAVSEA PMS 395, via COMSUBDEVRON FIVE-and the TYCOM. The package should include copies of completed Pre-Dive and Post-Dive Check-Off procedures, Onboard Dive Log and copies of reentry control documentation of deficiency correction (as applicable) (DSV/DSRV).
24	4 Weeks after	Issue formal certification letter and certificate upon completion of review of submitted package (NAVSEA 92Q).

NOTES: 1. **TO EXPEDITE RESOLUTION OF SCA SURVEY CARDS (IA AND IB) WHICH WILL ENABLE NAVSEA TO ISSUE MATERIAL ADEQUACY MESSAGE, THE SURVEY CARD WITH DOCUMENTED CORRECTIVE ACTION MAY BE TELEFAXED TO NAVSEA WITH A COPY PROVIDED TO THE TYCOM.**

2. **DUE TO THE COMPRESSED TIME FRAME FOR EXCHANGE OF NECESSARY REPORTS AND AUTHORIZATIONS, MESSAGE TRAFFIC OF APPROPRIATE PRECEDENCE SHOULD BE PARALLELED BY TELEPHONE CALLS/TELEFAX TO THE APPROPRIATE ACTION ADDRESSES CITING DATE-TIME GROUP. ALL MESSAGE REPORTS SHOULD INCLUDE INFORMATION COPIES TO ALL PARTIES DIRECTLY INVOLVED IN SEA TRIALS (I.E., TYCOM, NAVSEA PMS 395/92Q, COMMANDER, SUBMARINE TRAINING GROUP, COMSUBDEVRON FIVE, AND DSV/DSRV). THE TYCOM WILL RE-ADDRESS SPECIFIC REPORTS TO HIGHER AUTHORITY, AS REQUIRED.**

3. **PRIOR TO COMMENCING DOCK TRIALS, THE OIC SHALL RECEIVE WRITTEN VERIFICATION FROM FMA/INDUSTRIAL ACTIVITIES/CONTRACTOR(S) THAT ALL WORK/MODIFICATIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS. THIS DOCUMENT SHALL LIST SPECIFIC WORK COMPLETED AND APPROVED WAIVERS OBTAINED WITH PERMANENT OR TEMPORARY STATUS CITED.**

4. **SHOULD A MATERIAL DEFICIENCY TO AN ITEM WITHIN THE SCOPE OF CERTIFICATION OCCUR DURING SEA TRIALS THAT IS NOT CORRECTABLE BY A MINOR REPAIR, AS DEFINED BY VOLUME V, PART III OF THIS MANUAL, OR RESULTS IN A DIVE BEING ABORTED, A MESSAGE REPORT TO THE TYCOM IS REQUIRED IN ORDER THAT REASSESSMENT OF MATERIAL CONDITION MAY BE MADE. WHEN SEA TRIALS ARE BEING CONDUCTED FOR VEHICLE RECERTIFICATION, THE TYCOM WILL REQUEST NAVSEA PMS 395 RECONFIRM THE MATERIAL ADEQUACY OF THE DSV/DSRV TO CONTINUE SEA TRIALS.**

5. **IF A MATERIAL DEFICIENCY OCCURS ON THE CERTIFICATION DIVE WHICH IS CORRECTABLE BY MINOR REPAIRS, AS DEFINED BY VOLUME V, PART III OF THIS MANUAL, BUT DOES REQUIRE RE-ENTRY CONTROL, THE TYCOM WILL ONLY REPORT COMPLETION OF RECERTIFICATION DIVE. COMSUBDEVRON FIVE WILL REPORT CORRECTION OF DEFICIENCIES TO THE TYCOM AND REQUEST RECERTIFICATION. SUBSEQUENTLY, THE TYCOM WILL REQUEST SYSTEM CERTIFICATION FROM NAVSEA PMS 395.**

APPENDIX B

SAMPLE PHASE II CREW CERTIFICATION AGENDA FOR DSVs/DSRVs

1. The composition of the inspection team will normally be as follows:

   a. Chief Inspector - COMSUBDEVRON FIVE Deputy for Training and Readiness.

   b. Assistant Inspector - One each from COMSUBDEVRON FIVE Material and Operations Department.

2. Phase II Crew Certification for DSVs/DSRVs. Requirements for specific Phase II Crew Certification (modified operational readiness inspection) will be delineated by the Chief Inspector based on the crew's performance during Phase I Crew Certification, length of availability/major maintenance, state of training, and turnover of personnel. A recommended schedule is as follows:

NOTE: A MAN OVERBOARD DRILL WILL BE RUN ON THE SUPPORT SHIP DURING PHASE II CREW CERTIFICATION. TIMING OF THIS DRILL WILL NOT BE ANNOUNCED IN ADVANCE.

0800 - Observe Pre-Dive procedures.

0930 - Complete Pre-Dive. Review Check-Off Lists.

1000 - Conduct Pre-Dive Brief.

1020 - Launch vehicle (tethered).

1030 - Simulate dive to test depth. (Observe topside plotting team/surface controller).

NOTE: OBSERVATION OF SURFACE CONTROLLER AND TOPSIDE PLOTTING TEAM IS A CONTINUING ACTION WHILE THE VEHICLE HATCH IS SECURED.

1115 - Fire drill in the vehicle (use of Emergency Air Breathing System).

1130 - Loss of Continuous Transmission Frequency Modulation Sonar.

1145 - Vehicle stuck on the bottom drill.

1210 - Simulate surfacing of vehicle.

1220 - Recover vehicle. Noon meal.

1300 - Observe Post-Dive procedures.

1430 - Complete Post-Dive. Review Check-Off Lists.

1500 - Mercury spill procedures.

1530 - Line-up and commence battery charge.

1600 - Critique.

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